Does the Dodd-Frank Act Reduce Conflicts of Interest Faced by Credit Rating Agencies?

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Abstract

This paper compares the behavior of standard or *issuer-paid* rating agencies, represented by Standard & Poor's (S&P) to alternative or *investor-paid* rating agencies, represented by the Egan-Jones Ratings Company (EJR) after the Dodd-Frank Act regulation is approved. Results show that both S&P and EJR ratings are more conservative, stable and, on average, lower after the Dodd-Frank implementation. However, EJR ratings are higher for firms that may generate high revenue for the rater. Additionally, I find that, after the regulation, S&P cares more about its reputation. Exploiting a measure that captures the bond market's ability to anticipate rating downgrades, I show that, after Dodd-Frank, bond market's anticipation decreases for S&P but increases for EJR, suggesting that S&P ratings are timelier. Finally, I study how the bond market responds to rating changes and how firms perceive ratings in their decision to issue debt in the post-Dodd-Frank period. Results suggest that both S&P downgrades and upgrades generate a greater bond market response. On the contrary, only EJR upgrades have a magnified effect on bond market returns. The greater informativeness of S&P ratings after Dodd-Frank is confirmed by the meaningful impact of these ratings on firm debt issuance.

Keywords: Dodd-Frank, Credit Ratings, Reputation, Issuer-paid, Investor-paid, Conflicts of Interest, Market Anticipation.

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1 Introduction

"The main goal of the Dodd-Frank Act (Rule 17g-5) is
to discourage issuers from "shopping" for the highest rating and
to encourage credit rating firms to issue more accurate ratings".
(The Wall Street Journal - May 14, 2013)

Credit ratings are an important tool for assessing the relative level of credit risk of a company. More precisely, credit rating agencies provide forward-looking evaluations on the firms' creditworthiness, which benefit both issuers and potential investors. Credit ratings help issuers gain access to debt. Good credit ratings allow them to easily borrow from financial intermediaries or public markets. However, credit ratings also help investors understand the firm's ability to repay its debts.

Disciplining the rating activity is one of the main concerns of regulators in the wake of the 2007 financial crisis. Credit rating agencies (CRAs) have been blamed for contributing to the financial crisis, and the impetus for this idea is the investment-grade, "money-safe" ratings they provided to mortgage-backed securities.

The US Attorney General Eric H. Holder Jr. observed:

"ratings were affected by significant conflicts of interest, and Standard and Poor's (S&P) was driven by its desire for increased profits and market share to favor the interests of issuers over investors."[1]

The conflicts of interest affecting CRAs have their roots mainly on the CRA compensation system.[2] The main rating agencies operating on the market are, in fact, paid by the issuers themselves, following a model commonly known as *issuer-paid*. Given the poor performance of CRAs during the financial crisis and the need to better organize the rating industry, in July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) was passed. The law had a precise intention:

"to adopt new requirements for credit rating agencies to enhance governance, protect against conflicts of interest, increase transparency to improve the quality of credit ratings and increase credit rating agency accountability".[3]

[1] Attorney General Eric H. Holder Jr., *The New York Times*, Febrary 3, 2015.
[2] Pagano and Volpin (2010) argue that the conflicts of interest affecting issuer-paid credit rating agencies are due to a combination of three factors: the compensation system adopted, the possibility to sell ancillary services to their clients (like pre-rating assessments and corporate consulting) and the almost total immunity to civil and criminal liability for malfeasance. (Credit ratings should be treated as "opinions" and, because of that, are protected by the First Amendment).
[3] U. S. Securities and Exchange Commission, Press Release, August 27, 2014.

The Dodd-Frank Act applies to all the rating agencies that are nationally recognized (NRSROs), independent of the compensation system. However, it is clearly intended to discipline the main rating agencies (Standard and Poor's, Moody's and Fitch) after their misbehaviour during the financial crisis.

The purpose of this paper is to analyze the effects Dodd-Frank had on rating agencies with different business models. More precisely, a comparison between the standard *issuer-paid* model and the alternative *investor-paid* model, where investors demand and pay for ratings, is proposed. This paper is motivated by a large stream of the literature arguing that, among all "financial gatekeepers," credit rating agencies face the most serious conflicts of interest (Partnoy, 2006). Exploiting the potential higher conflicts of interest, many papers (e.g. Jiang et al., 2012, Strobl and Xia, 2012, Cornaggia and Cornaggia, 2013) show that the *issuer-paid* model is slower in identifying bad news, less timely and, above all, less accurate when compared to the alternative investor-paid model.

This paper exploits the Dodd-Frank Act for five main reasons. First, I want to study whether and how the difference in rating levels between the standard rating agencies, represented by S&P, and the alternative ones, represented by EJR[4], changes after a disciplining law, such as the Dodd-Frank Act. Second, I want to analyze whether and which rating agency is affected more by the passage of the law in terms of rating stability. Third, I want to investigate the reputation effect of the regulation on both rating agencies. In addition, I want to understand whether ratings affect the firm tendency to reduce debt issuance when close to a rating change. Lastly, I aim to investigate the bond market response to rating changes after Dodd-Frank.

The paper is developed by constructing a dataset that includes firm-, bond- and stock-specific information together with rating data. Ratings from S&P and EJR are obtained from different sources. S&P rating data and firm characteristics are collected from Compustat North America. EJR rating data are provided directly by the company. The analysis covers a sample period from 2005 until 2014 to isolate the effects of the Sarbanes-Oxley Act. Following the approach adopted by the literature, the Dodd-Frank period goes from the third quarter of 2010 until the last quarter of 2014.

The results illustrate that the Act lowers corporate credit ratings. Using an ordered logit model, I find that the probability of getting lower ratings from S&P is higher after the regulation is passed. The same result is found for EJR. However, EJR decreases its ratings less, as shown by the rating difference between the two rating agencies that becomes negative after the passage of Dodd-Frank. The study is extended to investigate whether the observed path holds for firms that may be more likely to generate revenue for credit rating agencies.[5] The results show that, before Dodd-Frank, S&P is more likely to

[4] The Egan and Jones Rating company was founded in 1995 and is wholly investor-supported. It rates the creditworthiness of more than 2000 high-yield and high-grade U.S. corporate debt issuers.

[5] I use two proxies to capture the firm's ability to generate revenue for the credit rating agency. The first is constructed to proxy for *bond issue frequency* (Covitz and Harrison, 2003; Kraft, 2011). The intuition for this proxy relies on the idea that firms issuing many bonds are considered "good clients" for issuer-paid rating agencies. Given the larger business that these firms can offer to CRAs, the phenomenon of rating inflation should be amplified for them. The second proxy (results for this proxy are not tabulated) is borrowed for Strobl and Xia (2012). Their measure of conflicts of interest takes into

inflate ratings for these firms. However, in the post-Act period, there is no longer a tendency to inflate ratings from S&P. On the other side, EJR ratings behave differently. Before Dodd-Frank, EJR does not seem to rate firms with a large volume of bonds more generously than firms with a lower volume. However, after Dodd-Frank, EJR appears to inflate ratings for this category of firms, suggesting a greater attention toward business development and revenue.

My second test examines rating conservativeness and stability. There is no significant difference in the behavior adopted by the two rating agencies.[6]

The third set of results relates to reputation. One way to capture the effect of the Dodd-Frank Act on CRAs' reputation is via bond market anticipation. As suggested by Zuckerman and Sapsford (2001), crises events and financial collapses might be exacerbated when investors do not get any warning from outside institutions, including rating agencies, as seen during the Enron scandal. Consequently, issuing timely and accurate ratings becomes fundamental for the investors, who might experience a loss because of the lacking information, and for the institutions themselves, who might be accused of misbehavior. To verify the importance of reputation for credit rating agencies, I test whether the bond market can predict rating announcements by comparing the bond spread variation before the rating disclosure to the bond spread variation afterward. Attention is focused on downgrades, since these are the rating changes that have a greater impact on investors' wealth. I investigate how careful rating agencies are in providing information to the market by examining whether a rating delay occurs for *falling angels*, defined by investment grade firms whose credit rating falls to become speculative, and *large firms*. The analysis of the market's ability to anticipate rating changes is conducted before and after the Act. Results suggest that market anticipation of S&P rating changes falls drastically after the Dodd-Frank Act. The opposite pattern is observed for EJR.

If Dodd-Frank disciplines issuer-paid rating agencies and if, consequently, issuer-paid credit ratings gain greater information content, then we should expect firms to react more to these ratings in terms of their decision to increase/decrease debt issuance. To test this, I verify whether firms' debt issuance is affected more by issuer-paid rating thresholds rather in the post-Dodd-Frank period. Specifically, following the methodology suggested by Kisgen (2006), I study whether debt issuance decreases more when firms receive a plus or a minus S&P rating, compared to a plus or a minus EJR rating. The results suggest that firms with a minus sign assigned by S&P lower their debt issuance more in the post-Dodd-Frank period than firms with a plus or a minus sign from EJR.

The last set of results illustrates the bond market response to rating changes before and after Dodd-

account the maturity of debt and aims to capture the reliance of firms on credit rating agencies. Their intuition is that firms that have a large proportion of their debt in the form of short-term debt are more subject to the rating agency's evaluation, as they need to roll over their debt more often.

[6] In April 2003, Moody's released a special comment to provide instructions about how to measure the performance of corporate bond ratings. In this document, Moody's tracks several volatility metrics to measure rating stability. Among these: (1) the frequency of rating changes of three or more rating notches and (2) the frequency of rating reversals (defined as rating actions in the opposite direction of previous rating actions). These are *inverse measures of rating stability.*

Frank. The results suggest that S&P downgrades and upgrades are more informative. The bond market reacts more to EJR upgrades. However, the response to EJR downgrades weakens in the after Dodd-Frank.

Taken together, the results suggest that the two credit rating agencies follow different strategies in the post-Dodd-Frank period with S&P being more prudent, more focused on its reputation and able to exercise a greater impact on the bond market.

This paper contributes to three main areas of research. First, it contributes to the growing literature explaining the differences between rating models that differ for the compensation system adopted. Second, the paper helps to the understanding of factors that may impact the reputation for credit rating agencies. Finally, it enriches the research that studies the effect of government regulations on ratings. To the best of my knowledge, this is the first paper to study the effect of the Dodd-Frank Act on multiple rating agencies and, in particular, to focus on how the difference between issuer-paid and investor-paid rating agencies evolved with a regulatory action. As far as I am aware, the closest paper is by Dmitrov et al. (2014). However, that paper makes no comparison between alternative models for the post-Dodd-Frank period.

The rest of the paper is organized as follows. *Section 2* presents the institutional background with a brief description of the differences between the two alternative models and the reasons that behind the 2010 regulation. *Section 3* contains the literature review. *Section 4* illustrates the underlying theory and the hypotheses tested. *Section 5* describes the data and provides details about the variable construction. *Section 6* presents the main results. *Section 7* concludes.

2 CRAs and the Dodd-Frank Act

Before the 2007 crisis, thanks to numerous laws and regulations, credit rating agencies had a primary and often decisive role in defining firm creditworthiness. Supporting that role was the decision in January 2001 from the Basel Committee on Banking Supervision to issue a consultative document on a new Basel Capital Accord (Basel II). Basel II puts great emphasis on external ratings, including from rating agencies, to assess credit risks.

Since 2007, credit rating agencies have been widely criticized because of their generous ratings on mortgage-backed securities and other structured-finance bonds that later defaulted. Critics argue that the observed rating errors underscore features of the rating industry that have weakened rating standards — in particular, the compensation system in which rating agencies are paid by security issuers rather than investors. The financial crisis induced researchers to consider the best compensation model to adopt in the rating industry.

At the moment, the rating market is characterized by two business models.

The first model is the standard *issuer model* where the issuer pays the rating agency for a rating. Many studies have shown that these ratings are more likely to be *inflated* if the issuer is a large or a mature company. These ratings also tend to be inflated during credit booms, since the fee income is more elevated. In addition, the standard model is more likely to be affected by *rating shopping*: issuers shop for the most positive ratings, causing a decline in the rating standards, as agencies hope to avoid losing market share by raising rating scores.

The alternative model is the *investor model* in which there is no direct relationship between issuers and rating agencies. In this model, investors pay the rating agency for an evaluation of the firm they want to invest in.

The weaknesses of the standard model and the role that standard rating agencies had in the financial crisis brought about calls to better discipline the rating industry.

Introduced in the House of Representatives as "The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2009" by Barney Frank and in the Senate Banking Committee by Chris Dodd on December 2, 2002, the Dodd-Frank Act was officially signed into law by President Barack Obama on July 2010. The 2010 Dodd-Frank Act incorporates a wide range of provisions to reshape the rating industry: The most relevant reforms include (1) new authority for the Securities and Exchange Commission (SEC) to suspend or revoke a rating agency's registration if warranted or to penalize individual agency employees for misconduct, (2) public disclosure of the assumptions and data used to arrive at each rating, (3) rules to strengthen corporate governance and board independence, (4) use of look-backs when agency employees leave to join firms whose ratings they may have influenced, (4) creation of an Office of Credit Ratings within the SEC to administer regulation and conduct annual examinations, (5) definition of standardized ratings to ensure comparability across ratings. The Dodd-Frank Act's impact on the rating industry was strengthened by the Franken Amendment (Section 939F) whose main actions aim to "direct the Security Exchange Commission to conduct a study of the credit rating process for structured finance products and the conflicts of interest associated with the issuer-pay and the subscriber-pay models" and to "consider potential mechanisms for determining fees together with alternative compensation models".[7]

Dodd-Frank applies to all the nationally recognized statistical rating organizations (NRSROs). Among all the credit rating agencies operating in the rating sector, there are nine NRSRO rating agencies: Standard & Poor's, Moody's Investors Service, Fitch Ratings, Kroll Bond Rating Agency, A. M. Best, Dominion Bond Rating Service (DBRS), Japan Credit Rating Agency, Egan-Jones Rating Company (EJR) and Morningstar. The Egan-Jones Ratings Company is the only NRSRO rating agency following the investor-paid model.

[7] "Report to Congress on Assigned Credit Ratings", Security Exchange Commission, December 2012.

3 Literature Review

This paper relates to three main streams of the literature on CRAs.

First, this paper contributes to the literature that seeks to investigate the reasons behind rating mistakes and perverse rating outcomes, by conducting a comparison between different business models.

Who pays for a rating matters. Jiang et al. (2012) provide evidence from the 1970s when Moody's and S&P were using different compensation systems. In particular, from 1971 until June 1974, S&P used an investor-paid model, while Moody's used an issuer-paid model. During this period, Moody's ratings systematically exceeded those of S&P. After S&P adopted the issuer-paid model, S&P ratings essentially matched Moody's.

The adoption of a specific compensation model is likely to affect the probability of credit rating inflation. Camanho, Deb and Liu (2012) develop a theoretical model to analyze the effects of competition on the conflicts of interest arising from the issuer compensation model.[8] Their main findings suggest that rating agencies following the issuer-paid model are more likely to issue inflated ratings, as issuers can choose among different agencies. A similar conclusion is presented in Strobl and Xia (2012). Here, the authors show that S&P is more likely to provide higher ratings than EJR when firms have a higher percentage of short-term debt, when firms have less concentrated business relationships with S&P and when firms have appointed a new leader and thus are more inclined to change their operational and financial strategy. On the contrary, no evidence for such behavior is found for EJR. Finally, a more direct comparison between models in the rating industry is offered in a recent paper by Xia (2014). Consistent with Cornaggia and Cornaggia (2013), Xia finds that issuer-paid ratings are slower in reflecting news to the market and incorporate less information when compared to investor-paid ratings. Additionally, Xia finds that issuer-paid rating agencies benefited from the entry of an investor-paid rating agency like EJR, as it brought indirect competition with the issuer-paid raters, revealing the low quality of existing ratings.

Second, this paper relates to the literature analyzing the reputation concerns of credit rating agencies. Covitz and Harrison (2003) analyze whether CRAs act to protect their reputations as delegated monitors. Considering a sample of rating transactions from 1997 to 2002, they show that CRAs care about their reputation and issue timely ratings that can hardly be anticipated by the bond market. Mathis et al. (2009) argue that reputation matters only if a large fraction of CRA income comes from other sources besides rating products. Becker and Milbourn (2011), instead, show that CRA reputation depends on competition. Using the Fitch's market share as a proxy for increased competition, the authors point out

[8] The disciplining effects of competition on credit rating agencies are studied theoretically by Mathis et al. (2009), Camanho et al. (2010), Bar-Isaac and Shapiro (2011), Skreta and Veldkamp (2011), Bolton, Freixas, and Shapiro (2012) and Manso (2013) among others. On the empirical front, Becker and Milbourn (2011) find evidence that the entry of Fitch led to better ratings. The opposite results are reported by Doherty et al. (2012) in their analysis of entry into insurance market by A.M. Best.

that rating quality decreased after the entry of Fitch in the rating market.[9] Lastly, Bar-Isaac and Shapiro (2010) highlight the link between CRA reputation and economic fundamentals varying over the business cycle. Their evidence suggests that CRAs are more likely to issue inaccurate ratings during booms than during recessions.

Third, this paper aims to contribute to the literature that studies the effects of government regulations on credit rating agencies. A first effort in this direction is provided by White (2009), who investigates the potential effects associated with the expanded regulation on credit rating agencies after the optimistic ratings of subprime residential mortgage-backed securities. White points out that excessive regulation may raise barriers to entry, rigidify procedures and discourage innovation in gathering and assessing bond information. A different approach is adopted by Kisgen and Strahan (2010) who examine the impact of ratings regulation on bond yields. Their analysis, which is conducted exploiting a quasi-natural experiment, the NRSRO designation received by DBRS in 2003, shows that investors care about the ratings granted and that they decide to hold bonds only when they are rated investment grade by one or more NRSROs. A similar study with a greater attention toward the investor-paid model is that of Bruno et al. (2015). Here the authors show that the information content of EJR ratings does not change after the NRSRO certification has been assigned, with both upgrades and downgrades being equally likely. A similar analysis is performed by Behr et al. (2014). They analyze the effect of the NRSRO status granted in 1975 on the largest rating agencies. They highlight a sort of "rating entrenchment" for all those rating agencies designated as NRSRO. The designation resulted in more barriers to entry in the industry, lower incentives to improve credit quality and, consequently, higher ratings and reduced rating informativeness.

The first paper to analyze the effects of the Dodd-Frank Act on credit rating agencies is by Dimitrov et al. (2014). The aim of this paper is to investigate whether the passage of the Dodd-Frank had a disciplining effect on CRAs after the 2007 financial crisis. The results suggest that, after Dodd-Frank, the accuracy of rating standards, as measured by the rating levels, the number of false warnings and the information content of rating changes, declines. As a consequence, they conclude that the Dodd-Frank regulation had a weak effect on the rating sector.

The purpose of this paper is to take a step further than Dimitrov et al. (2014) and to better identify the effects of the regulation across different business models. The goal is to investigate whether Dodd-Frank disciplined issuer-paid rating agencies and how that affected the behavior of a rating agency, like EJR, that benefited of a good reputation in the past.

[9] The result provided by Becker and Milbourn (2011) contradicts the main findings of Bae et al. (2013) and Cheng and Neamtiu (2008).

4 Theory and Hypothesis Development

In this section, I briefly discuss the underlying theory and the hypotheses for the empirical tests.

The first rating agency I examine is Standard and Poor's. This is a standard rating agency, paid by issuers and strongly criticized during the 2007 financial crisis for being too lax. The alternative approach, represented by the Egan-Jones Ratings Company, entails a more active role of the investors, who demand and pay for the ratings of the firms. This alternative rating model is widely recognized for being less exposed to conflicts of interest. Several papers have shown the existence of a gap between the standard and the alternative model, which translates into more diligence by the latter. Little has been done to investigate how this gap evolves after the passage of a disciplining regulation like the Dodd-Frank Act.

The comparison between the issuer-paid model and the investor-paid model is conducted around several hypotheses.

First, the Dodd-Frank Act may affect rating levels. In the standard business model, issuing higher ratings is a way for the rating agency to strengthen its relationship with its clients. However, this strategy may hurt the informativeness of ratings.[10] A bad quality firm might receive a good grade only because there is a long-term relationship between the issuer and the rating agency. For this reason, it becomes interesting to analyze whether Dodd-Frank affects the rating level of the standard model compared to the alternative one. I expect S&P to issue lower ratings after the law. The behaviour of EJR needs to be better tested empirically. Different outcomes are, in fact, possible. Given the regulatory pressure created by the Dodd-Frank Act, it might be the case that EJR lowers its ratings as well. However, since Dodd-Frank mainly aims to discipline the issuer-paid rating agencies, EJR may lower its ratings but to a lower extent. Another possibility for EJR is to not change the rating strategy at all. If EJR is confident about its ratings and the market recognizes their informativeness, then EJR should be only marginally affected by Dodd-Frank in terms of credit rating levels. Put differently, the rationale behind the first test is to understand whether the difference between S&P and EJR rating levels becomes negative after Dodd-Frank. This is the first hypothesis (**H1**) I test.

Second, as emphasized by Dmitrov et al. (2014), Dodd-Frank may have a threatening effect on rating agencies. Standard rating agencies may react to the regulation by issuing more *conservative* ratings, meaning by assigning more severe ratings to firms that are not close to default. Following the same logic, ratings are expected to be more *stable.* Stability in ratings is a preferable condition in the rating industry since it ensures a constant flow of information to investors. Given the disciplining effect of the regulation, I expect S&P to adopt a strategy that compensates its previous negligence. The effect on EJR is uncertain. I expect EJR not to change its behaviour or, on the limit, to issue more conservative

[10] As stated by Pagano and Volpin (2010): Ratings inflation and low informativeness may reinforce each other. To the extent that investors are rational, they will see through CRA's incentives to inflate ratings and therefore will consider them as relatively uninformative".

and stable ratings in line with what is suggested by the Dodd-Frank Act. This is the second hypothesis (**H2**) I test here.

Third, disciplining regulations may affect how much rating agencies care about their reputation. Measuring reputation is not easy and the literature has proposed several ways. One way to capture the attention of rating agencies toward reputation is to study whether rating changes can convey information that is not otherwise available to the market. Using the approach of Covitz and Harrison (2003), reputation is proxied by the degree of market anticipation[11], which has clear implications for the reputation of rating agencies. I expect rating agencies to be positively affected by the regulation in terms of reputation. That is, I expect market anticipation to decrease and, on the limit, to become negative after Dodd-Frank. In addition, I expect to observe a magnified effect for S&P compared to EJR. This is the third hypothesis (**H3**) that I test.

My fourth hypothesis relates to how firms perceive credit ratings after Dodd-Frank. If S&P ratings become more reliable after Dodd-Frank, firms should take more into account S&P credit ratings in their decisions regarding debt issuance. Specifically, I expect firms to reduce their debt issuance more after Dodd-Frank when the rating they receive has a plus or a minus S&P rating. There should be no significant change in how firms perceive EJR ratings after Dodd-Frank Act. This is the fourth hypothesis (**H4**) I test.

The last hypothesis (**H5**) to consider is the market perception of rating changes. If following a downgrade (upgrade), the bond market reacts by strongly decreasing (or increasing) the average market return, then it means the market believes in the information content of rating changes. On the other hand, if the market reaction is weak, the informativeness of credit ratings is reduced. I expect the Dodd-Frank Act to influence the way the bond market responds to rating changes. Specifically, I expect to see a more pronounced market reaction following S&P rating changes. No significative change, for the reasons explained above, should be observed for EJR.

5 Data

5.1 Sample Selection and Variable Construction

My paper relies on several datasets.

The S&P long-term credit ratings are obtained from Compustat North America Ratings. All the observations for which there are no rating data are deleted from the sample. Following the existing

[11] The intuition behind bond market anticipation as a proxy for CRA reputation is the following: if the poor performance of a given firm is somehow anticipated by the market without relying on credit ratings, then credit ratings become meaningless, and rating agencies do not properly act as delegated monitors.

literature, I assign numerical values to each rating on notch basis: AAA=23, AA+=22, AA=21, AA-=20, A+=19, A=18, A-=17, BBB+=16, BBB=15, BBB-=14, BB+=13, BB=12, BB-=11, B+=10, B=9, B-=8, CCC+=7, CCC=6, CCC-=5, CC=4, C=3, D=2, SD=1. Since firm characteristics are available only quarterly, I construct a quarterly time series for the S&P rating database. To this end, I average the rating actions happening in the same quarter, meaning that, if there is more than one rating action in the same quarter, I take the average of these ratings based on the above numerical conversion.

The EJR database is obtained directly from the Egan and Jones Ratings Company. The database contains issuers' names, tickers, rating actions, including new rating assignments, upgrades and downgrades and related rating dates. This database is constructed on a time-series basis, where each credit rating with a rating action is treated as an observation. I thus construct a quarterly time series for the EJR database, where I assign a rating in the current quarter equal to the rating in the previous quarter if no rating action has occurred. Since EJR and S&P use the *same* rating scale, I use the same numerical conversion adopted for the S&P database. As before, I delete observations when rating data are not available. The sample period covered by the EJR dataset goes from 1999 until 2014. I merge the S&P and EJR databases using the firm ticker and the year-quarter information.

Issuers' financial information and firm-specific characteristics are obtained from the Compustat database. I consider characteristics that may have an impact on the rating level. Specifically, I consider size, tangibility, market-to-book, profitability, long-term leverage, debt issuance and cash-asset ratio.[12] To deal with possible endogeneity problems, all variables are lagged one period. All missing values are deleted from the sample. Additionally, to limit the effects of outliers, all the control variables are winsorized at the 1% level. The Compustat database is merged to the S&P and EJR rating database by using the firm ticker and the year-quarter information.

Finally, the analysis requires the use of bond data. Bond information is gathered from FINRA's Trade Reporting and Compliance Engine database (TRACE). This database contains information about bond prices, returns, yields and years to maturity. To get bond spreads, I collect the Treasury yields[13] from the US Treasury database, available online. I construct bond spreads for each firm as the difference between the bond yield of each security and the Treasury yield with comparable maturity and coupon. I drop observations if the spread is equal or lower than zero or if there are missing data.[14]

Figure (1) provides an illustration of the S&P and EJR average credit rating levels over time, starting from 1999, when the EJR ratings became publicly available. The figure shows that the S&P credit ratings are above the EJR credit ratings during the 2007 financial crisis. However, starting from 2010, this trend is reversed. The analysis in this paper starts in January 2005 to isolate the effect of the Sarbanes-Oxley

[12] More details about how variables are constructed are provided in the appendix.

[13] Treasury yields are interpolated by the Treasury from the daily yield curve, which relates the yield on a security to its maturity based on the closing-market bid yields on actively traded Treasury securities in the over-the-counter market. The yield values are read from the yield curve at fixed yearly maturities: 1, 2, 3, 5, 7, 10, 20, 30 years.

[14] Further details about the construction of the bond-related data are provided later in the empirical section.

Act. The beginning of the post Dodd-Frank period is July 2009.

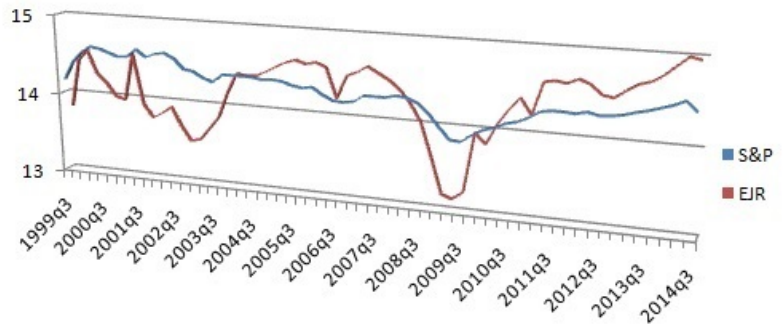

Figure 1: *S&P and EJR rating levels over time*

Summary statistics for firm characteristics and rating data, before and after Dodd-Frank, are provided in Table (1).

[Insert Table 1]

Firm characteristics are almost unchanged after the passage of the Dodd-Frank Act. The market-to-book and tangibility are slightly lower. Size and long term leverage are slightly larger. The credit rating difference, defined as the difference between Standard & Poor's ratings and EJR ratings, is positive before the passage of Dodd-Frank Act but negative afterward. As shown in the summary statistics table, the sample covers 790 firms in the pre-Dodd-Frank period and 699 in the post-Dodd-Frank period. The total number of observations in the pre-Dodd-Frank period is 9,806. The total number of observations in the post Dodd-Frank period is 7,889.

The distribution of rating changes, upgrades and downgrades, for S&P and EJR is provided in Table (2).

[Insert Table 2]

Table (2) illustrates how the rating activity evolves with the passage of the law. It points out that the rating activity has become faster after the regulation is passed. The number of rating changes substantially increases after 2010, with the upgrades becoming more frequent, above all for EJR.

6 Empirical Results

6.1 Rating Levels

The main purpose of this paper is to analyze how credit rating agencies behave after Dodd Frank Act. The first step (*Hypothesis 1*) is to consider the effect of the Dodd-Frank law on credit rating levels for Standard and Poor's and Egan-Jones. The evidence suggests that rating agencies shifting from the investor model to the issuer model have issued higher ratings over time (Jiang et al., 2012) and that, under specific circumstances that may enhance the conflicts of interest, issuer-paid agencies provide higher ratings than investor-paid rating agencies (Strobl and Xia, 2012). However, we do not know whether this trend persists after a disciplinary regulation, like Dodd-Frank, has been approved. The intuition suggests that S&P should progressively lower its ratings in an attempt to be more prudent after Dodd-Frank. On the opposite side, the result for EJR is an open question. As pointed out in the "Theory and Hypothesis Development" section, different scenarios are possible. One possible result could be EJR issuing lower ratings. However, given that the law was thought to discipline the standard issuer-paid rating agencies, we should expect a more mitigated effect on the alternative investor-paid model. Another possibility for EJR is not to change its strategy because it was already precise and punctual. The last possibility for EJR is to issue higher ratings in the post-Dodd-Frank period. The law, conceived for the standard issuer-paid rating agencies, may have weakened the rating standards for the alternative model. In other words, since the law targets the standard rating agencies, institutions may pay less attention to monitoring all rating agencies, and the investor-paid agencies may, as a result, relax their standards.

I test *Hypothesis 1,* the effect of the Dodd-Frank law on rating levels and, consequently, on the rating difference between S&P and EJR, by estimating the following ordered logit model (or ordinary least squares model) where the dependent variable, the rating level for S&P or EJR, is estimated controlling for specific firm characteristics and a time trend.

More in detail:

$$(S\&P\ Rating)_{it} = \alpha + \beta_1\ Dodd\ Frank\ Act + \beta_2\ X_{it-1} + \beta_3\ Recession + \lambda t + \theta_{SIC} + \varepsilon_{it}, \quad (1)$$

$$(EJR\ Rating)_{it} = \alpha + \beta_1\ Dodd\ Frank\ Act + \beta_2\ X_{it-1} + \beta_3\ Recession + \lambda t + \theta_{SIC} + \varepsilon_{it}, \quad (2)$$

where the dependent variable in models (1) and (2) is represented by the rating scores assigned by S&P

and EJR, respectively. Following the methodology used by Dmitrov et al. (2014), I define Dodd-Frank using a dummy variable that takes value one starting from July 2010. I include firm-specific variables that may affect the rating level (size, cash ratio, tangibility, market-to-book ratio, past profitability, past debt issuance ratio, long-term leverage[15]), a dummy variable that accounts for the 2007 financial crisis and a time trend. Results for the S&P and EJR rating levels are presented in Table (3).

[Insert Table 3]

In Table (3), Columns (1) and (2) show results when the dependent variable is the S&P rating level. Columns (3) and (4) show results when the dependent variable is the EJR rating level. Columns (1) and (3) present estimates when the model is an ordinary least square, with a time trend and industry fixed effects. Columns (2) and (4) present results when the estimated model is an ordered logit, with a time trend and industry fixed effects. Results are consistent across different specifications.

In the post-Dodd-Frank period, the probability of receiving lower ratings from S&P is higher. All the controls included in the regression have the predicted signs: larger and profitable firms, that issued large amounts of debt in the past and that are characterized by important growth opportunities (as proxied by the market-to-book ratio) are more likely to receive higher ratings. On the contrary, firms with high levels of leverage or with higher cash ratios receive lower ratings. Interestingly, the time trend moves in opposite direction with respect to the coefficient for the post-Dodd-Frank dummy. The time trend suggests that moving from one quarter to the other (i.e. increasing t by one unit) yields an effect of λ on the outcome variable as represented by the rating levels of either S&P or EJR. The positive coefficient for the time trend illustrates that, over time, credit rating levels are increasing. However, as suggested by the *After Dodd-Frank period dummy*, in the post-Dodd-Frank period the probability of getting lower ratings from S&P is lower. Table (3), Columns (3) and (4), shows a similar pattern for EJR. EJR assigns lower ratings in the post-2010 period. The control variables have the expected signs.

To understand who responds more by lowering its credit ratings more, I consider the evolution of the rating difference, defined as the cardinal difference between the S&P credit rating and EJR credit rating in the post Dodd-Frank period. The regression I consider is:

$$(S\&P - EJR)_{it} = \alpha + \beta_1 \; Dodd\; Frank\; Act + \beta_2 \; X_{it-1} + \beta_3 \; Recession + \lambda t + \theta_{SIC} + \varepsilon_{it}. \qquad (3)$$

In model (3), the dependent variable is the cardinal difference between the S&P and EJR credit ratings. As before I account for firm-specific controls and a time trend Results are shown in Table (4).

[15] To account for possible endogeneity issues, all the control variables are lagged one period.

[Insert Table 4]

In Table 4, Columns (1) and (2) describe the evolution of the rating difference in the post-Dodd-Frank period without firm controls but with the inclusion of a time trend. Columns (3) and (4) describe the post-Dodd-Frank rating difference with firm-specific controls. Columns (1) and (3) consider standard errors clustered by firm ticker. Columns (2) and (4) add industry fixed effects.

The results show that the rating difference is declining after Dodd-Frank. To appreciate the magnitude of the results, note Column (4), where the coefficient on the *After Dodd-Frank period* is negative and equal to (-0.263). This means that, in the post-Dodd-Frank period, S&P issues a rating that is about 0.263 notches lower than EJR. Similar results are found for the other specifications. This implies that both rating agencies issue lower ratings in the post-regulation period, but S&P is more reactive and more prudent, as shown by the diminished rating difference.

One possible concern when estimating the rating difference model (model (3)) is that it does not control for *business cycle dynamics*. The post-regulation period happens during the early stage of the recovery following the 2007 crisis. Different credit rating agencies may react to the uncertainty of the recovery in different ways. Thus it is important to test whether the negative rating difference result still holds while accounting for variables that vary with the business cycle. To test for business cycle implications, I augment model (3) by including the log of GDP, past one-year market returns (using S&P 500 index), S&P 500 index level, perceived firm profitability, industry asset turnover and a proxy for quarterly firm stock market performance. The inclusion of these variables does not change the observed result for the rating difference (Column (5) in Table (4)).[16]

6.2 Firms with Conflicts of Interest: High-Fee firms

In the previous paragraph, I have shown that S&P and EJR are both affected by Dodd-Frank in terms of rating levels. They both issue lower ratings, but S&P is more affected and issues lower ratings than EJR. The previous analysis has been conducted by considering all the firms available in the sample. What happens if the sample is restricted to firms that may generate conflicts of interest with credit rating agencies? Specifically, what will be the result in terms of credit rating levels when the analysis focuses on *firms that issue a large number of bonds*? Firms that issue many bonds are more likely to pay higher fees to the credit rating agency. These firms, given the frequent relationship with the credit rating agency, can be interpreted as "good clients" in the eyes of standard issuer-paid CRAs. If issuer-paid rating agencies are still affected by conflicts of interest after Dodd-Frank, then we should observe higher ratings from S&P

[16] Additionaly, the results are not driven by sample selection issues. They still hold when focusing on firms that exist before and after Dodd-Frank . Specificlly, almost 96% of the firms exist before and after the passage of the Dodd-Frank law.

for these categories of firms, compared to other firms, also after the passage of a disciplining regulation. However, if it is true that the Dodd-Frank Act has been conceived to reshape the rating industry, then the lower ratings I observe throughout the entire sample should be observable also for the subset that issues many bonds. No significant change in rating levels should be expected for EJR.

The idea of using the number of bonds issued by every firm as a proxy for potential conflicts of interest is standard in the literature.[17] Examples are Covitz and Harrison (2003), Jiang et al. (2011) and Kraft (2011). To identify firms that issue a large number of bonds, I construct a dummy variable, *High-Fee*, that takes a value equal to one if the average number of bonds issued by the single firm is greater than the average number of bonds issued by the industry sector to which the firm belongs. To study how the rating levels for S&P and EJR, as well as the rating difference between the two credit ratings ($S\&P - EJR$), change after the passage of Dodd-Frank for firms issuing a large number of bonds, I consider fully interacted models as specified below:

$$\begin{aligned}(S\&P\ Rating)_{it} &= \alpha + \beta_1\ Dodd\ Frank\ Act + \beta_2\ High\text{-}Fee + \beta_3\ Dodd\ Frank\ Act \times High\text{-}Fee + \\ &+\beta_4\ X_{it-1} + \beta_5\ X_{it-1} \times High\text{-}Fee + \lambda t + \theta_{SIC} + \varepsilon_{it}, \end{aligned} \tag{4}$$

$$\begin{aligned}(EJR\ Rating)_{it} &= \alpha + \beta_1\ Dodd\ Frank\ Act + \beta_2\ High\text{-}Fee + \beta_3\ Dodd\ Frank\ Act \times High\text{-}Fee + \\ &+\beta_4\ X_{it-1} + \beta_5\ X_{it-1} \times High\text{-}Fee + \lambda t + \theta_{SIC} + \varepsilon_{it}, \end{aligned} \tag{5}$$

$$\begin{aligned}(S\&P - EJR)_{it} &= \alpha + \beta_1\ Dodd\ Frank\ Act + \beta_2\ High\text{-}Fee + \beta_3\ Dodd\ Frank\ Act \times High\text{-}Fee + \\ &+\beta_4\ X_{it-1} + \beta_5\ X_{it-1} \times High\text{-}Fee + \lambda t + \theta_{SIC} + \varepsilon_{it}, \end{aligned} \tag{6}$$

Model (4) shows the evolution of S&P rating levels across high-fee firms and low-fee firms in the post-Dodd-Frank period. In model (4), *Dodd Frank Act* measures the S&P rating level in the post-Dodd-Frank period for firms classified as having low conflicts of interest, meaning firms that issue a small number of bonds compared to the sample mean and, consequently, pay a smaller fee to the credit

[17] An alternative proxy for conflicts of interest is offered by Jiang et al. (2011). They define a proxy, called "*Low Quality*", which takes value one for firms whose firm's operating margin is below the median within each year, quarter and S&P credit rating and zero otherwise. The rationale behind this proxy is the following. Firms with a low operating margin within each credit rating bin are the ones more likely to benefit from a higher rating and, consequently, are the ones more likely to generate conflicts of interest. A high rating would, in fact, allow them to get closer to the next rating bin, which makes investors believe that the firm's creditworthiness is about to improve. The analysis for the rating level evolution as well as for the rating difference evolution in the post-Dodd-Frank period for firms classified as Low Quality is not discussed in the body of the paper but is presented in the appendix, Table (14).

rating agency. For firms that potentially generate high conflicts of interest, the S&P rating level in the post-Dodd-Frank period is measured by the sum of *Dodd Frank Act* and the interaction variable (*Dodd Frank Act* $\times$ *High-Fee*). Thus the interaction variable (*Dodd Frank Act* $\times$ *High-Fee*) indicates whether, after the adoption of the Dodd-Frank regulation, S&P ratings change more for firms with a large issuance of bonds than for other firms. A positive coefficient for the interaction variable between *Dodd Frank Act* and *High-Fee* would mean that S&P is inflating ratings more for firms that potentially pay higher fees regardless of the disciplining effect of Dodd-Frank. A coefficient that is not statistically significant should be interpreted as S&P behaving similarly in his rating activity for high-fee firms and low-fee firms. A negative coefficient for the interaction variable is a signal of greater prudence by S&P also in relation to firms that are larger and issue several bonds. The interpretation holds for the EJR rating levels (model (5)) and the rating difference between S&P and EJR (model (6)). Results are presented in Table (5).

[Insert Table 5]

Column (1) considers the S&P credit rating level as the dependent variable, Column (2) the EJR credit rating level and Column (3) the rating difference between S&P and EJR. Columns (1) and (2) present results from ordered logit models and Column (3) presents results for an ordinary least squares model. Each model is estimated by accounting for firm-specific characteristics that may affect ratings, a time trend and industry fixed effects.

The results suggest that, before Dodd-Frank, the probability of assigning higher S&P ratings to firms issuing a large number of bonds is higher (i.e., the probability of S&P inflating ratings for firms able to bring in more revenue is higher). In contrast, EJR does not seem to assume a particular rating strategy regarding this category of firms in the pre-Dodd-Frank period (i.e., it neither inflates or deflates ratings). Combining these results, we observe, in Column (3), that in the pre-Dodd-Frank period the rating difference is positive and equal to **(**1.846**)**, which implies that S&P tends to assign ratings that are 1.846 notches higher than the ratings that are assigned for the same firm, in the same period, by EJR.

The sum of *Dodd Frank Act* and the interaction variable (*Dodd Frank Act* $\times$ *High-Fee*) provides intuition on the CRAs' behaviour after Dodd-Frank when firms with a large bond issuance are rated. The results suggest that, while S&P is issuing lower ratings for these categories of firms (i.e., the rating inflation phenomenon disappears post-Dodd-Frank for firms that provide a high fee to the credit rating agency), EJR seems to issue higher ratings, generating a rating difference that, as shown in Column (3), is negative. The different behaviour is even more clear when examining the interaction variable (*Dodd Frank Act* $\times$ *High-Fee*). The interaction variable illustrates how S&P and EJR rate *High-Fee* firms relative to low-fee firms in the post-Dodd-Frank period. As shown in Column (1), the interaction variable (*Dodd Frank Act* $\times$ *High-Fee*) is no longer statistically significant. Said in other words, there is

no statistically difference between how S&P rates firms that issue many bonds versus those that issue only a few. This is no longer true when considering EJR ratings. Finally, this discrepancy between S&P and EJR ratings becomes more evident in the Column (3). Here, the interaction variable becomes negative and significant at the 1% level suggesting that, after the adoption of the Dodd-Frank Act, S&P reduces its ratings by approximately 0.469 notches in comparison to EJR. While the coefficient for the interaction variable in Column (1) can be explained in light of a more accurate and prudent behaviour that induces S&P to treat high-fee firms and low-fee firms equally, the positive and statistically significant coefficient for the EJR credit ratings is surprising.

The positive coefficient for the interaction variable for EJR could be explained by considering the particular nature of the firms considered in these analysis.

Firms issuing a large number of bonds provide revenue for rating agencies. From the point of view of issuer-paid agencies, they may want to issue higher ratings to cement the relationship with such a client. However, firms that issue many bonds also generate revenue for investor-paid rating agencies. It is, in fact, likely, that an investor that receives a good rating on a firm issuing a large number of bonds will decide to invest again in this firm in the near future. It is, then, likely that the investor will ask updated information about the large issuing firm from paying again the investor-paid rating agency. The tendency of EJR to assign higher ratings for EJR in the post-Dodd-Frank period could be explained in light of the established reputation gained by EJR after the NRSRO certification and the lower monitoring exercised by the Dodd-Frank regulation.[18]

[18] The positive coefficient for the interaction variable ($Dodd\ Frank\ Act \times High\text{-}Fee$) when EJR ratings are studied between high-fee firms and low-fee firms is likely to be driven by the behaviour of the EJR rating company after the NRSRO designation. In order to check if the EJR rating company cares more about *rising revenue* after the NRSRO certification I divide the sample in two sub-samples. First, I consider a sub-sample that goes from January 2005 (the first available date in my data) until July 2010, when the Dodd-Frank regulation was passed. In this way, I can study EJR credit rating levels before and after the NRSRO certification, received by the EJR company in December 2007. Second, I consider a sub-sample that goes from December 2007 until December 2014 (the last available date in my data). In this way, I can study EJR credit rating levels before and after the Dodd-Frank regulation, passed in July 2009, when the NRSRO certification has already been received by EJR. Results are provided in Table (13) in the Appendix. By using a fully interacted logit model with respect to High-Fee firms, I get results (untabulated) suggesting that before the NRSRO certification, EJR is more prudent towards this category of firms (i.e. lower probability of assigning higher ratings for firms with a large issuance of bonds). The more cautious behavior of EJR towards these firms might be explained by considering that firms with a large bond issuance are often large firms, more likely to undertake investments and slower in adapting to changing market conditions. Firms with a large bond issuance can, thus, be interpreted as riskier firms, on average. However, after the certification, neither a rating inflation phenomenon or a rating deflation phenomenon is evident in EJR rating activity. Moreover, in the post NRSRO period, EJR is more likely to issue higher ratings for high-fee firms rather than for low-fee firms (i.e. the interaction variable between the *High-Fee* variable and a dummy variable for the post *NRSRO* period is positive). Although the statistical significance of this result is limited at the 10% level, it suggests that, after the certification, the investor-paid rating agency is more worried about generating revenue and, slowly, starts rising rating levels for firms that are potentially more able to generate it. When focusing on the post *NRSRO* sub-sample, the results suggest that after the passage of the Dodd-Frank regulation, the rating inflation phenomenon towards large bond issuing firms is stronger.

6.3 Rating Coservativeness and Rating Stability

After considering the evolution of rating levels after Dodd-Frank, the next step of the analysis is to analyze whether there is a threat effect and which credit rating agency is affected more by the regulation in this sense. The threat effect will be disentangled in two effects: the conservativeness effect and the stability effect.

To study the "rating conservativeness", I estimate the following logit model:

$$Warnings_{it} = \alpha + \beta_1 \; Dodd \; Frank \; Act + \beta_2 \; X_{it-1} + \beta_3 \; Recession + \lambda t + \theta_{SIC} + \varepsilon_{it}, \qquad (7)$$

where the dependent variable, *Warnings*, is a dummy which takes a value equal to one if at time (t) the rating assigned is a speculative one but the firm that receives the rating does not default within one year.[19] The dependent variable is, then, regressed against a dummy variable for the post-Dodd-Frank period, firm characteristics, a dummy variable for the 2007 financial crisis and a time trend. Results for S&P ratings and EJR ratings are presented in Table (6).

[Insert Table 6]

Columns (1) and (2) show results for S&P Warnings. Columns (3) and (4) show results for EJR Warnings. Table (6) presents different specifications. Columns (1) and (3) show estimates when standard errors have been clustered by firm ticker, Columns (2) and (4) consider industry fixed effects.

After the regulation is passed, the probability of warnings for S&P increases meaning that the regulation induces S&P to be more cautious and assign a speculative rating although the firm is not close to default. The coefficients associated with the controls suggest that there is a correlation between rating levels and probability of warnings: larger and profitable firms, which are more likely to receive higher ratings are also less likely to receive warnings. On the opposite side, firms with high levels of leverage are more likely to receive lower ratings and credit rating warnings. Summarizing the results from Table (3) and Table (6), it seems that there is an impact of Dodd-Frank on standard issuer-paid rating agencies, whose evaluations become more prudent.

Similar results are found when considering the last two columns of Table (6). EJR appears to issue more conservative ratings. As for S&P, the Dodd-Frank Act has an impact on rating agencies by generating a more prudent attitude.

To investigate the effect on rating stability, I estimate the probability of large rating changes.[20] Credit ratings are expected to change slowly. While unexpected events may require multi-notch rating adjust-

[19] This dependent variable might also be interpreted in a different way. It also captures whether credit rating agencies are becoming more cautious in the post regulation period.

[20] A special comment released by Moody's in April 2003 states that rating statibility can be proxied in three different

ments, changes in credit quality will typically be reflected in a series of single-notch rating changes spaced out over extended periods. Accurate and stable ratings should quickly incorporate new information, anticipate changes in credit quality and adapt to new events in a judicious manner. Large rating changes will thus reflect information that has not been updated and promptly transferred to the market. Specifically, a rise in the frequency of large rating changes, defined as credit rating changes of three or more notches within one year, will be interpreted as a signal of rating instability. The specification I use to test for rating stability is the following:

$$Big\ Rating\ Change_{it} = \alpha + \beta_1\ Dodd\ Frank\ Act + \beta_2\ X_{it-1} + \beta_3\ Recession + \lambda t + \theta_{SIC} + \varepsilon_{it}, \quad (8)$$

where the dependent variable, *Big Rating Change*, is a dummy that takes a value equal to one if, within one year, the rating from either S&P and EJR, changes of at least three notches. The dependent variable is, then, regressed against a dummy variable for the post-Dodd-Frank period, firm characteristics (previously used), a dummy variable for the 2007 financial crisis and a time trend. Results for S&P and EJR ratings are presented in Table (7).

[Insert Table 7]

Columns (1) and (2) show results when Big Rating Changes from S&P are taken into account. Columns (3) and (4) show results for Big Rating Changes from EJR. Table (7) presents different specifications. Columns (1) and (3) show estimates when standard errors have been clustered by firm ticker, Columns (2) and (4) consider industry fixed effects.

The results suggest that both S&P and EJR show a lower probability of big rating changes after the passage of Dodd-Frank. The result holds independent of the specifications used.

Taken together, the results illustrate that credit ratings are overall more conservative, meaning that CRAs tend to show a more punitive attitude towards issuers, and they are overall more stable, as credit rating agencies regularly monitor firms with the goal of transferring information to the investors.

ways: the frequency of rating actions, the frequency of large rating changes and the frequency of rating reversals, which refers to the scenario in which a credit rating agency assigns a rating that is subsequently changed and then confirmed again. EJR is characterized by a much larger number of rating changes and rating reversals before and after Dodd-Frank. On the opposite side, S&P is characterized by a lower number of rating changes and rating reversals before and after the law. Since there is no observed variation after Dodd-Frank for the two rating agencies, both in terms of rating changes and in terms of rating reversals, the attention is focused on big rating changes.

6.4 Placebo Test

One important concern when interpreting the previous tables might be: Is the observed pattern (in terms of credit rating levels, rating conservativeness and rating stability) a result of the reputational loss experienced by credit rating agencies after the 2007 financial crisis? Said differently, the greater caution shown by credit rating agencies after Dodd-Frank might be explained as a reaction to the strong criticism of the rating industry post-2007. If so, how is it possible to disentangle the reputational effects, due to the financial crisis, from the regulatory effects, due to Dodd-Frank? To understand whether my results are a response to the reputational damage or rather a consequence of the Dodd-Frank, a possibility is to run a Placebo Test. This test examines a period that is comparable, in terms of effects on reputation for the credit rating sector, to the one in which Dodd-Frank takes place, but is clearly not affected by any specific regulation for that sector.

To perform the placebo test, one alternative is to consider the post-Enron period. The bankruptcy of Enron Corporation in October 2001 generated massive critiques of rating agencies. Following Covitz and Harrison (2003), to test whether credit rating agencies have reputational concerns following a crisis, it is possible to analyze credit rating agencies' behaviour in fiscal year 2002. This year has few similarities with the post-Dodd-Frank period. First, 2002 is the year following the Enron crisis, which has cast doubts on rating agencies, similarly to what happened post-2007. Second, the 2001 Enron default was followed by a period of economic expansion, like the one experienced after the 2007 financial crisis. My placebo test is described below by the following regressions:

$$(S\&P\ Rating)_{it} = \alpha + \beta_1 Post\text{-}Enron + \beta_2 X_{it-1} + \lambda t + \theta_{SIC} + \varepsilon_{it}, \tag{9}$$

$$(EJR\ Rating)_{it} = \alpha + \beta_1 Post\text{-}Enron + \beta_2 X_{it-1} + \lambda t + \theta_{SIC} + \varepsilon_{it}, \tag{10}$$

$$(S\&P\text{-}EJR)_{it} = \alpha + \beta_1 Post\text{-}Enron + \beta_2\ X_{it-1} + \lambda t + \theta_{SIC} + \varepsilon_{it} \tag{11}$$

$$Warnings_{it} = \alpha + \beta_1 Post\text{-}Enron + \beta_2\ X_{it-1} + \lambda t + \theta_{SIC} + \varepsilon_{it} \tag{12}$$

$$Big\ Rating\ Change_{it} = \alpha + \beta_1 Post\text{-}Enron + \beta_2\ X_{it-1} + \lambda t + \theta_{SIC} + \varepsilon_{it} \tag{13}$$

Equations (9) and (10) study the rating level behaviour, from either S&P or EJR, in the post-Enron period. Equation (11) investigates how the rating difference evolves after Enron's scandal. Equations (12) and (13) provide intuition for the rating conservativeness and rating stability. In each one of the

equations listed above, firm-specific controls are taken into account as well as a time trend and industry fixed effects. Results are provided in Table (8).

[Insert Table 8]

Columns (1), (2) and (3) describe the rating levels for S&P, the rating levels for EJR and the rating difference between the two agencies after the Enron scandal, respectively. Columns (4) and (5) provide results for S&P and EJR *Warnings* in the post-Enron period. Columns (6) and (7) focus on *Big Rating Changes*.

The results suggest that, after the Enron scandal, credit rating agencies behaved differently than after Dodd-Frank. As shown by Columns (1) and (2), in the period after the Enron scandal, rating inflation for S&P is still evident as shown by a *Post-Enron* dummy that is positive for S&P (i.e., higher probability of getting higher S&P ratings in the post-Enron period) but negative for EJR (i.e., lower probability of getting higher EJR ratings in the post-Enron period). Consequently, the rating difference between S&P and EJR is positive. A closer look at Column (3) shows that the *Post-Enron* dummy is positive and equal to (0.367), suggesting that S&P assigns ratings that are 0.367 notches higher than EJR after Enron's scandal. The different behaviour arises also in the rating conservativeness and rating stability results. Columns (4) and (6) show that S&P ratings are less conservative and stable. A different pattern is found for EJR.

Summing up, the results show that the reputational loss experienced by the credit rating agencies induced a behavior that was not comparable to the behavior observed after Dodd-Frank. In the post Enron period, S&P does not adopt a prudent behaviour, either in the form of lower ratings or in the form of more warnings. Additionally, ratings appear less stable.

6.5 Is the Regulation Affecting CRAs' Reputation?

Standard rating agencies, represented by S&P, seem to behave differently from investor-paid rating agencies, represented by EJR. As shown above, in the post-Dodd-Frank period S&P issues lower ratings. On the opposite side, EJR seems to be less affected by Dodd-Frank. A possible explanation might rely on the different effect that the act has on the *reputation* of credit rating agencies. Issuer-paid CRAs suffered more in terms of credibility during the financial crisis and might be more interested in avoiding penalties and protecting their reputation. Such pattern should not be observed among investor-paid CRAs. To investigate whether CRAs' reputation is affected by the regulation and, in particular, whether the regulation affects reputation in different ways according to the business model chosen by rating agencies, I first study which factors may damage more CRAs in terms of reputation and then I analyze whether S&P and EJR care more about their reputation in the post Dodd-Frank period.

6.5.1 Reputation Hypothesis

Credit rating agencies may act in the interest of issuers or in the interest of investors.

One mechanism for acting in the interest of issuers is to delay rating downgrades.Downgrades have important effects on *issuers*. After receiving a downgrade, the cost of funding becomes higher, contractual obligations tighter and, more generally, reputation deteriorates with significative consequences in the relationships with suppliers. Delaying a downgrade is thus beneficial to issuers. The benefits of delaying are proportional to the magnitude of the downgrade and are generally higher if the costs deriving from the rating change are higher. Costs are magnified if a firm is downgraded from investment class to speculative class, generating what is commonly known as *falling angel*. If such a downgrade occurs, the damage might be serious: firms might be constrained in their access to the capital markets, meaning that getting funds will be possible only after providing proof of enough collateral. In addition, investors might become reluctant to invest in firms whose quality is deteriorating so rapidly. The costs deriving from a downgrade action are important for *large firms*[21], which are generally old firms with a well-recognized reputation on the market. In this circumstance too, delaying a downgrade might be beneficial.

Delaying a downgrade might benefit investors as well if they have already invested in the issuer. A downgrade might, in fact, lower the value of the investor's market portfolio.[22]

However, if delaying a downgrade can help issuers, it can hurt the reputation of rating agencies. If rating actions are delayed, investors might find rating agencies less useful since they cannot anticipate defaults. Reputation costs for rating agencies, in the form of negative publicity, are enhanced when multiple agencies operate on the market. As expected, if there are several agents on the market and one of these is more timely than the others, the costs in terms of reputation and credibility for all those that delay are worsened. Intuitively, reputation costs because of delayed rating updates become significative when rating changes have an impact on large issuers and when they are responsible for a change of status — from investment to speculative class.

From an empirical point of view, the relative delay of credit ratings may be used to analyze whether firms care about their reputation. If delays increase for falling angels or large firms, then rating agencies are acting without caring much about their reputation. However, if the delays for falling firms and larger firms decrease, then credit rating agencies are acting to protect their reputation and to provide timely and precise information to investors (*Reputation Hypothesis*).

Following Covitz and Harrison (2003), the credit rating delay can be proxied by the degree to which the bond market anticipates the rating change. This measure will be used to study the importance of

[21] Firm size can be proxied by either the log of total assets or the total number of bonds outstanding. Since it is preferable to have a monthly reputation measure, in this context large firms are firms with a considerable number of bonds issued.

[22] As noted in a report released by the Congress on Assigned Credit Ratings "As with the issuer-pay model, the subscriber-pay model also presents certain conflicts of interest. These conflicts result because subscribers could have an interest in specific credit ratings and, consequently, could exert pressure on credit rating agencies to determine o maintain credit ratings that will result in outcomes that favor the subscriber".

reputation before and after the introduction of Dodd-Frank. The attention will be focused on downgrades rather than upgrades since delayed downgrades are the rating changes that most likely affect investors and, consequently, rating agency reputation. The capability of the bond market to anticipate rating changes may be a function of several factors, like the magnitude of the rating change or the total spread change in a well-specified time interval around the rating change event. For that purpose, I will consider different variables that may affect market anticipation.

6.5.2 Market Anticipation: Variable Construction

Bond market anticipation is proxied by the ratio between the corporate bond spread in a well-defined window before the rating change and the corporate bond spread for a longer period that includes the credit rating announcement. More precisely, the *Market Anticipation* variable is defined as:

$$\begin{aligned} Anticipation &= 100 * (Prior\ Period\ Spread\ Change)\ /\ (Total\ Period\ Spread\ Change) \\ &= 100 * \underbrace{(Spread_{t-1} - Spread_{t-i})\ /\ (Spread_t - Spread_{t-i})}_{Anticipation\ Ratio}. \end{aligned}$$

The frequency for the bond market anticipation analysis is monthly[23], so the subscript t refers to the month of the rating announcement, $t-1$ refers to the month prior to the rating change and i refers to the total number of months taken into account for the event window created around the rating change. If rating agencies are timely and quickly transfer information on the market, then the anticipation ratio should be small and, on the limit, close to zero. However, if rating agencies are slow in identifying credit risk, then the market anticipation ratio should be larger and close to one. As shown in the formula above, the corporate bond spread for the entire period, including the rating announcement, generates the *Total Period Spread Change*.

The methodology used for the construction of the anticipation variable is the following. I consider corporate bond spreads for a six-month window around S&P and EJR rating downgrades. I consider only firms for which I have available data for the five months prior to the rating downgrades. In addition, I assume that each rating downgrade is not preceded or followed by any rating change from either S&P or EJR other than the one occurring at time t.[24] The assumption is needed to make sure that the spread change is attributable to the downgrade action only.

[23] To estimate the monthly market anticipation, I construct a monthly time series for S&P ratings and EJR ratings following the same methodology explained in the data section.

[24] Let us assume that we are studying the bond market market anticipation following S&P downgrades in the six-month before the rating announcement. The assumptions needed to make sure that the market is responding only to the S&P rating action are (1) no other rating change from S&P in the five months period before the rating announcement and (2) no rating change for EJR in the entire period.

I drop observations if the total period spread change is less than zero or missing, and I set anticipation between 0 and 100. If anticipation happens to be lower than zero, then it is replaced with 0. However, if anticipation is greater than 100, then it is replaced with 100. Finally, I set anticipation equal to its maximum whenever the total period spread change is negative, equal to or lower than 20 basis points. This assumption relies on the idea that, if the total period spread change is small enough and thus the spread before the rating change is very close to the spread at the time of the rating change, the market is almost fully able to anticipate the rating action and, as a consequence, anticipation can be set equal to its maximum.

6.5.3 Main Results

The empirical strategy to study the effect of the Dodd-Frank Act on reputation for rating agencies is to regress the market anticipation variable on firm *size* and a dummy variable that identifies *falling angels* while controlling for variables that might affect the anticipation measure. I focus first on the downgrades issued by S&P.

The basic specification is:

$$(S\&P\ Downgrade\ Anticipation)_{it} = \alpha + \beta_1 Falling\ Angel\ Dummy_{it} + \beta_2 Large\ Client_{it} + \beta_3 X_{it} + \theta_i + \theta_t + \epsilon_{it}. \tag{14}$$

The main variables in the above specification are *Falling Angel Dummy* and *Large Client*. If the sign for β_1 or β_2 is positive, then it means that the market can anticipate the rating action and reputation is a concern for S&P. If the sign is negative, then S&P works properly and the market learns from the information delivered. Model (11) is estimated before and after the passage of the Dodd-Frank Act to check whether there is a change in sign or magnitude for the coefficients of interest. Results are presented in Table (9).

[Insert Table 9]

Columns (1) and (4) show results when year/quarter fixed effects are taken into account. Columns (2) and (5) add industry fixed effects. Columns (3) and (6) consider year/quarter and firm fixed effects. The first three columns refer to the period before Dodd-Frank. The last three columns refer to the post regulation period. Following Covitz and Harrison (2003), other than the intentional delay proxies, I include a variable that provides information on the magnitude of the downgrades (*S&P Rating Change*)[25], a variable that refers to the years to maturity for each bond considered in the analysis (*Years to Maturity*),

[25] SP Magnitude refers to the notch difference before and after the rating change.

the squared total-period spread change (*Total Period Spread Change*) and the rating scores assigned by S&P (*S&P Rating*). Results indicate that, in the period preceding the regulation, fallen angels are, on average, 14 percentage points more anticipated by the bond market than other downgrades, suggesting that rating agencies are less timely and do not care too much about their reputation. The coefficient associated to falling angels becomes negative when the period after the regulation is taken into account. After the third quarter of 2010, fallen angels are almost 13 percentage points less anticipated than other downgrades. The sign and magnitude of the results seems to suggest that S&P ratings are becoming more timely and less predictable. The coefficient for *S&P Rating Change* is negative and highly significant independent of the specification used or the period considered, suggesting that the market does not anticipate downgrades that are particularly large in magnitude.[26] The coefficient for *Total Period Spread Change* is negative as expected. *Size*, *Years to Maturity* and the *S&P Ratings* are not significant.

The basic specification used for EJR rating downgrades is given by:

$$(EJR\ Downgrade\ Anticipation)_{it} = \alpha + \beta_1 Falling\ Angel\ Dummy_{it} + \beta_2 Large\ Client_{it} + \beta_3 X_{it} + \theta_i + \theta_t + \epsilon_{it}. \tag{15}$$

Results are presented in Table (10).

[Insert Table 10]

As previously done, I focus my attention on the delay proxies, controlling for factors that may influence the market anticipation of EJR rating downgrades, and I distinguish between pre and post-Dodd-Frank period by adopting different specifications. Results indicate that, in the period preceding the regulation, there is a negative relationship between the delay proxies and the market anticipation variable, suggesting that the bond market cannot anticipate these ratings and predict downgrades. However, after Dodd-Frank, this pattern is no longer true. Falling angels are 8 percentage points more anticipated than common downgrades (when year fixed effects and industry fixed effects are considered). The controls have the expected signs. As before, the coefficient for large clients is not significant. The magnitude of the downgrade (*EJR Magnitude*) is negatively correlated with the market anticipation measure as well as the *Total Period Spread Change*.

The results from Table (9) and (10) highlight a discrepancy between S&P and EJR in the way they timely report downgrades to the market after the regulation is passed. S&P becomes more timely by issuing ratings whose information would otherwise not be available to the market. EJR rating downgrades appear to be delayed and their information is somehow anticipated by the bond market. Thus the regulation points out divergent behaviors by the two rating agencies.

[26] Downgrades that are particularly large in magnitude are often a signal of unstable ratings.

6.6 Information Content of Rating Changes: Bond Market and Stock Market Response

In this section, I compare the reaction of investors to S&P and EJR rating changes before and after the passage of the Dodd-Frank Act. I examine the reaction on the bond market. Using bond data is convenient because bond prices are more affected than stock prices by changes in default probabilities.

The bond market analysis is conducted using the following methodology. Announcement bond returns are calculated for every bond-firm couple in a three-month period that includes the month of the rating announcement (date t, *event date*) the month before the rating announcement (date $t-1$) and the month following the rating announcement (date $t+1$). Announcement bond returns are calculated as:

$$R_{bit} = \frac{P_{bit} - P_{bi(t-2)}}{P_{bi(t-2)}},$$

where P_{bit} defines the price of bond b issued by firm i at the time of the rating change (date t) and $P_{bi(t-2)}$ defines the price of the same bond issued 60 days before the rating change[27] (date $t-2$). Bond returns are calculated as percentage of the bond price two months before the rating announcement to weaken the possibility that the price prior to the rating disclosure has already incorporated part of the bond response to the rating change. I exclude observations if there is more than one rating change in the two months prior to the rating announcement. I drop observations if the rating change at time t is followed by another rating change at time $t+1$.[28]

Results for S&P and EJR rating changes are presented in Table (11).

[Insert Table 11]

Table (11) shows the bond market response to S&P and EJR rating changes before and after Dodd-Frank. The results show a different pattern before and after the regulation. Following the Dodd-Frank Act, the average bond return after an S&P downgrade is higher in absolute value, although the magnitude of the bond market response is quite small either before or after. Consistently, the average bond return after an upgrade increases. Specifically, the mean return after downgrades is -0.013% before Dodd-Frank and -0.42% afterward. Results are significant at the 1% level. On the opposite side, the mean return after upgrades is 0.067% before Dodd-Frank and 0.47% afterward. The difference is significant at the 1% level. Interestingly, the bond returns following S&P rating changes are not significant before Dodd-Frank, but are afterward.

[27] When considering the month following the event date, the announcement bond returns are calculated as:

$$R_{bi(t+1)} = \frac{P_{bi(t+1)} - P_{bi(t-2)}}{P_{bi(t-2)}}$$

[28] The logic behind this procedure is to ensure that bond returns are exposed only to single rating actions.

Additionally, Table (11) shows the bond market response to EJR downgrades and upgrades before and after Dodd-Frank. Following an EJR downgrade, the bond market response becomes smaller, with a mean bond return equal to -0.012%, The difference between the mean return in the pre-Dodd-Frank period and post-Dodd-Frank period is equal to 1.64% and is significant at the 1% level. I get slightly different results when bond returns surrounding EJR upgrades are taken into account. The bond market response increases from 1.18% to 1.40%, generating an overall increase of 0.22%, which is significant at the 1% level.

Taken together, the results suggest that the informativiness of credit ratings after the passage of the act is different for the two rating agencies. S&P experiences a greater bond market reaction following any rating change. On the other side, EJR downgrades have a weaker effect. EJR upgrades have a more significant impact on the bond market, but the increase in bond market returns appears to be smaller than the one observed for S&P upgrades.

6.7 Real Effects Post-Dodd Frank

One way to analyze the effect of Dodd-Frank on ratings is to consider whether ratings from S&P or EJR are taken into account by firms in their debt issuance. To conduct this analysis, I test whether firms change their debt issuance more after a rating from S&P or after one from EJR. The methodology used resembles the one adopted by Kisgen (2006). The relationship between credit ratings and debt issuance is highly endogenous and suffers of reverse causality. Higher ratings make access to the capital market easier. However, it is also true that firms that issue more debt have greater financing possibilities and may be more likely to receive higher ratings. To address this reverse causality problem, one possibility is to consider credit ratings with a plus or a minus rating. Firms with a plus or a minus credit rating are those close to a change in rating. Given that a change in rating is more likely to happen, to minimize the probability of downgrade (or to maximize the probability of upgrade), firms with a plus or a minus rating will reduce their net debt issuance, relative to their net equity issuance, as a percentage of total assets.

If S&P internalizes the Dodd-Frank regulation and S&P ratings become more reliable, then firms should put more weight on S&P ratings when they decide how much debt to raise. If, as shown in the rating level analysis and in the bond market anticipation analysis, EJR ratings are less timely and more aimed at generating revenue, then the effects of these ratings on firms' debt issuance should shrink after Dodd-Frank.

The model I use to check the effect of ratings on the firm decision to issue debt, before and after Dodd-Frank, is described below:

$$Debt\ Issuance_{it} = \alpha + \beta_1 S\&P_{it-1}^{Minus} + \beta_2 S\&P_{it-1}^{Plus} + \beta_3 EJR_{it-1}^{Minus} + \beta_4 EJR_{it-1}^{Plus} + \beta_5 X_{it-1} + \theta_i + \theta_t + \varepsilon_{it}. \tag{16}$$

As in Kisgen (2006), the dependent variable is the net issuance of debt.[29] $S\&P_{it-1}^{Minus}$ and $S\&P_{it-1}^{Plus}$ are dummy variables that take a value equal to one if the S&P rating has a minus or a plus, respectively. EJR_{it-1}^{Minus} and EJR_{it-1}^{Plus} are dummy variables that take a value equal to one if the EJR rating has a minus or a plus, respectively. I control for EJR and S&P rating levels. Additionally, I control for size, profitability, cash ratio, market-to-book and tangibility. Industry and year fixed effects are included. Results are presented in Table (12).

[Insert Table 12]

Columns (1) and (5) describe the effect on debt issuance of ratings that are on the boundaries within every S&P rating bin as well as within every EJR rating bin. Columns (2) and (6) add firm-specific controls (lagged one period). Columns (3) and (7) test for the effects on debt issuance of $S\&P_{it-1}^{Minus}$ and $S\&P_{it-1}^{Plus}$ taken alone, with and without controls, respectively. Columns (4) and (8) test for the effects on debt issuance of EJR_{it-1}^{Minus} and EJR_{it-1}^{Plus} taken alone, with and without controls, respectively. Columns (1) through (4) consider the pre-Dodd-Frank period. Columns (5) through (8) consider the post-Dodd-Frank period.

The results show a clear pattern before and after Dodd-Frank. Beforehand, the firm decision to reduce debt issuance is not affected by S&P or EJR ratings. However, debt issuance is affected by S&P ratings after Dodd-Frank, as shown in column (5) through (8). Firms with a minus S&P rating will issue approximately 2.26% less debt net of equity as a percentage of total assets than firms for which no rating change is expected. The magnitude of the reduction in debt issuance is equal to 1.82% when firm-specific controls are added. As shown in columns (5), (6) and (8), there is no effect on debt issuance for firms with EJR ratings with a plus or a minus. The result is consistent with the idea that, after Dodd-Frank, S&P ratings are more reliable, more conservative and more stable. Given the greater attention toward reputation from S&P, firms internalize the improvements in S&P ratings by valuing them more.[30]

[29] Debt net issuance is defined as the difference between the change in debt issuance and the change in equity issuance. This difference is thus standardized by total current assets. The change in debt issuance is defined as the change in long-term debt issuance minus long-term debt reduction plus changes in current debt. The change in equity is computed as sale of common and preferred stock minus purchases of common and preferred stock.

[30] I also use an alternative specification that accounts for plus or minus S&P and EJR ratings around the speculative threshold *(BBB+, BBB-)*. The reason to focus on the investment threshold is the significantly lower cost of debt that firms with a rating above the investment threshold have compared to firms below that threshold. Intuitively, the relevance of this threshold should lead to a more pronounced effect on firm debt issuance.

Specifically, I test for:

$$Debt\ Issuance_{it} = \alpha + \beta_1 S\&P_{it-1}^{BBB-/BBB+} + \beta_2 EJR_{it-1}^{BBB-/BBB+} + \beta_5 X_{it-1} + \theta_i + \theta_t + \varepsilon_{it}.$$

7 Conclusion

The Dodd-Frank Act was conceived to reform the rating industry after the the financial crisis. The aim of the Dodd-Frank law is to reduce the conflicts of interest affecting the standard model in which rating agencies are paid by debt issuers. Over time, alternative rating models have been proposed. Among these, researchers have focused a lot on the investor-paid model where investors become intermediaries between the rating agencies and the issuers, reducing the above conflicts of interest. A lot has been done to explain the differences between the two models, but no one has investigated how the two models behave after a disciplining regulation is passed.

In this paper, I show that the Dodd-Frank Act has affected credit rating agencies following different compensation systems in different ways.

The results suggest that the two rating business models adopt different strategies, with S&P being more prudent and threatened by Dodd-Frank. The results highlight that the more cautious behaviour adopted by the issuer-paid CRAs persists in firms able to generate a revenue (i.e., *High-Fee* firms) . Opposite results are found for the investor-paid CRAs which appear to be more willing to inflate ratings for firms with a greater bond issuance.

Additionally, Dodd-Frank has an effect on CRAs' reputation. Using a market measure for the ability to anticipate rating actions, I notice that there is a greater effort S&P, to provide timely ratings, which can be hardly anticipated by the bond market. On the contrary, bond market anticipation increases for EJR, meaning that the information released by EJR can be easily captured by the bond market without necessarily relying on its ratings. Finally, I check whether the effect of the Dodd-Frank regulation on the two rating models is different from the point of view of the bond market response and the firm ability to reduce/increase debt issuance following credit ratings. My results suggest that the impact of S&P rating changes on the bond market increases after Dodd-Frank. The effect for EJR ratings is ambiguous. Moreover, S&P ratings have a greater effect on the firm decision to reduce debt issuance. EJR ratings have no effect.

This paper represents a first attempt to analyze the effect of government regulations on different business models in the rating industry. It can also be interpreted as illuminating the necessity of viewing the investor-paid model in a different way. For long time, it has been considered the best candidate to replace the standard model. However, my results suggest that it may be necessary to better investigate

$S\&P_{it-1}^{BBB-/BBB+}$ is a dummy that takes a value equal to one if the S&P rating is either BBB- or BBB+. $EJR_{it-1}^{BBB-/BBB+}$ is a dummy variable that takes a value equal to one if the EJR rating is either BBB- or BBB+. Firm-specific controls, industry fixed effects and year fixed effects are included. The results (untabulated), illustrate that, before Dodd-Frank, firms with a *BBB-* EJR rating reduce their debt issuance by about 2.69%. The result is significant at the 10% level. However, after Dodd-Frank, the pattern is different. EJR ratings affect less the firm decision to issue debt. On the opposite side, S&P ratings become more relevant after the Dodd-Frank law. Receiving an S&P rating that lies around the investment threshold will cause firms to lower the amount of debt issued by almost 1.4%. The result is significant at the 10% level.

its role in the market, its growing market share and the credibility of its ratings.

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Appendix

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Variable Construction:

After Dodd-Frank: Dummy variable taking value one from July 2010 until December 2014.

Rating Difference: Cardinal difference between S&P credit rating level and EJR credit rating level.

Size: Log of quarterly Total Assets.

Tangibility: Ratio of Property Plant and Equipment over Total Assets.

Market-to-Book: Ratio of Market Value of Assets over Book Value of Assets

Market value of assets: Market Value of Equity (close price multiplied by common shares outstanding) minus Book Value of Equity (total assets minus total liabilities plus deferred taxes and investment tax credit) plus Book Value of Total assets.

Profitability: proxied by Return on Assets, computed as operating income before depreciation over total assets.

Long-Term Leverage: (Total Debt$_t$ -Total Debt$_{t-1}$) / (Book Value of Total Assets)$_{t-1}$.

Cash Ratio: Cash over Total Assets.

Warnings: Dummy variable taking value one if at time (t) the rating assigned is a speculative one, but the firm that receives the rating does not default at time $(t+4)$.

Big Rating Change: Dummy variable taking value one if, within one year, the rating from either S&P and EJR, changes of at least three notches.

High-Fee: Dummy variable taking value one if the number of bonds issued by the single firm is greater than the average number of bonds for the entire sample.

Anticipation: Ratio between the spread change in a time period prior the S&P or EJR rating downgrade and the spread change in a period that includes the S&P or EJR rating downgrade.

Debt Issuance: $(\Delta\ Debt\ Issuance\text{-}\Delta\ Equity\ Issuance)/(Total\ Assets)$.

Table 1: Summary Statistics - Firm Characteristics and Rating Levels

Means, standard deviations, minimums and maximums for firm-specific characteristics before Dodd-Frank and after Dodd-Frank. The *Before Dodd-Frank* period goes from January 2005 to June 2010. The *After Dodd-Frank* period incorporates all rating actions from July 2010 until December 2014. Firm-specific characteristics include: *Long-Term Leverage, Size, Cash Ratio, Tangibility, Market-to-Book Ratio, Profitability, Debt Issuance, Operating Margin, Average Number of Years per firm and Rating Levels (S&P and EJR).*

	Before Dodd-Frank				***After Dodd Frank***			
Variable	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**Mean**	**Std. Dev.**	**Min.**	**Max.**
Long-Term Leverage	0.276	0.148	0.013	0.771	0.285	0.141	0.016	0.773
Size	8.870	1.275	6.151	12.752	9.207	1.304	6.149	12.753
Cash/Assets	0.001	0.031	-0.121	0.125	-0.002	0.03	-0.121	0.124
Tangibility	0.379	0.245	0.006	0.896	0.374	0.262	0.006	0.896
Market/Book	1.495	0.596	0.727	4.097	1.447	0.548	0.727	4.105
Profitability	0.083	0.054	0.003	0.267	0.082	0.051	0.003	0.268
Debt Issuance	0.002	0.031	-0.086	0.211	0.005	0.03	-0.087	0.21
Operating Margin	0.482	0.386	0.007	2.14	0.542	0.41	0.006	2.136
Average N of Years	5.016	1.352	1	6	4.429	0.948	1	5
S&P	14.201	3.432	1	23	14.327	3.204	2	23
EJR	14.178	3.806	2	23	14.632	3.679	2	23
Rating Difference (S&P-EJR)	0.042	2.094	-10	15	-0.291	1.907	-9	12
Years	2005Q1 - 2010Q2				2010Q3 - 2014Q4			
Number of Observations	9806				7889			
Average N of Firms	790				699			

Table 2: Rating Changes

Rating changes (upgrades, downgrades and total number of rating changes) from S&P and EJR over the sample period: 2005Q1-2014Q4. The *Before Dodd-Frank* period goes from January 2005 to June 2010. The *After Dodd-Frank* period incorporates all rating actions from July 2010 until December 2014.

Year	**Upgrade S&P**	**Downgrade S&P**	**Total S&P**	**Upgrade EJR**	**Downgrade EJR**	**Total EJR**
2005	40	45	85	144	92	236
2006	53	97	150	175	173	348
2007	87	89	176	137	177	314
2008	74	96	170	73	322	395
2009	50	138	188	134	248	382
2010	109	60	169	403	79	482
2011	99	45	144	221	124	345
2012	64	49	113	135	157	292
2013	74	46	120	196	125	321
2014	61	25	86	160	63	223

Table 3: Rating Levels for S&P and EJR

Ordered Logit Regressions and Ordered Least Squares Regression of *S&P* rating levels and *EJR* rating levels on a dummy for the *After Dodd-Frank* period, firm-specific controls and a time trend. Firms that are contemporaneously rated by S&P and EJR are taken into account. The *Before Dodd-Frank* period goes from January 2005 to June 2010. The *After Dodd-Frank* period incorporates all rating actions from July 2010 until December 2014. Firm-specific controls include: *Size, Cash Ratio, Tangibility, Market-to-Book Ratio, Profitability, Debt Issuance, Long-Term Leverage and Recession.* All the firm controls are lagged one period. Columns (1) and (2) analyze the evolution of S&P rating levels after Dodd-Frank. Columns (3) and (4) analyze the evolution of EJR rating levels after Dodd-Frank. Columns (1) and (3) show results when the model is an Ordered Least Squares. Columns (2) and (4) show results when the model estimated is an Ordered Logit. Columns (1) through (4) take into account industry fixed effects. All the control variables are winsorized at the 1% level. ***, ** and * denote significance at 1%, 5% and 10% levels, respectively.

	S&P Rating Level		***EJR Rating Level***	
	(1)	(2)	(3)	(4)
After Dodd-Frank period	-0.447***	-0.420***	-0.184***	-0.110**
	(0.0459)	(0.0442)	(0.0540)	(0.0438)
Size	1.093***	1.143***	0.858***	0.846***
	(0.0132)	(0.0151)	(0.0155)	(0.0142)
Cash Ratio	-1.367***	-1.609***	-1.883***	-1.642***
	(0.482)	(0.463)	(0.568)	(0.463)
Tangibles	0.282**	0.352***	-0.242*	-0.204*
	(0.113)	(0.108)	(0.133)	(0.105)
Market/Book	1.529***	1.584***	2.013***	1.933***
	(0.0304)	(0.0318)	(0.0358)	(0.0325)
Profitability	5.613***	5.374***	7.362***	6.040***
	(0.312)	(0.300)	(0.367)	(0.299)
Past Debt Issuance	2.932***	2.530***	4.144***	3.773***
	(0.481)	(0.458)	(0.566)	(0.456)
Long Term Leverage	-6.983***	-6.751***	-9.982***	-8.749***
	(0.126)	(0.133)	(0.148)	(0.137)
Recession	-0.114***	-0.114***	-0.357***	-0.287***
	(0.0421)	(0.0407)	(0.0496)	(0.0404)
Trend	0.0177***	0.0144***	0.0228***	0.0161***
	(0.00198)	(0.00189)	(0.00233)	(0.00190)
N	16799	16799	16799	16799
R^2	0.626	-	0.612	-
Pseudo R^2	-	0.190	-	0.187

Table 4: Rating Difference between S&P and EJR

Ordered Least Square Regressions of the *Rating Difference* between S&P and EJR on a dummy for the *After Dodd-Frank* period, firm-specific controls and a time trend. The*Before Dodd-Frank* period goes from January 2005 to June 2010. The *After Dodd-Frank* period incorporates all rating actions from July 2010 until December 2014. Firm-specific controls include: *Size, Cash Ratio, Tangibility, Market-to-Book Ratio, Profitability, Debt Issuance, Long-Term Leverage and Recession.* All firm controls are lagged one period. Columns (1) and (2) show the evolution of the rating difference between S&P and EJR after Dodd-Frank when a time trend is considerend but no firm-specific controls are added. Columns (3) and (4) show the evolution of the rating difference between S&P and EJR after Dodd-Frank when a time trend is considerend and firm-specific controls are added. Column (1) and (3) assume standard errors clustered by firm ticker. Column (2) and (4) show estimates with industry fixed effects. All the control variables are winsorized at the 1% level. ***, ** and * denote significance at 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	S&P- EJR	*S&P- EJR*	*S&P-EJR*	*S&P-EJR*
After Dodd- Frank period	-0.371***	-0.334***	-0.295**	-0.263***
	(0.109)	(0.0384)	(0.118)	(0.0418)
Trend	0.00457	0.00292*	-0.00185	-0.00503***
	(0.00487)	(0.00173)	(0.00525)	(0.00180)
Size			0.154***	0.235***
			(0.0384)	(0.0120)
Cash Ratio			-0.227	0.517
			(0.721)	(0.439)
Tangibles			-0.195	0.524***
			(0.205)	(0.103)
Market/Book			-0.452***	-0.484***
			(0.0798)	(0.0277)
Profitability			-1.683***	-1.749***
			(0.476)	(0.284)
Past Debt Issuance			-1.691***	-1.211***
			(0.494)	(0.438)
Long Term Leverage			2.916***	2.999***
			(0.342)	(0.115)
Recession			0.258***	0.243***
			(0.0593)	(0.0383)
N	17695	17695	16799	16799
R^2	0.007	0.111	0.096	0.193
Clustered by Firm Ticker S.E.	Yes	No	Yes	No
Industry F.E.	No	Yes	No	Yes

Table 5: High-Fee firms: Firms with High Conflicts of Interest

Fully interacted models that describe S&P and EJR rating levels post Dodd-Frank for firms classified as *High-Fee* firms. Columns (1) and (2) show results for ordered logit regressions, with the dependent variable represented by S&P and EJR rating levels, respectively. Column (3) considers the rating difference between S&P and EJR (S&P-EJR). Each dependent variable is regressed against a dummy for the post Dodd-Frank period, a dummy for High-Fee firms, an interaction term between the two and firm specific controls. Firm specific controls include: *Size, Cash Ratio, Tangibility, Market-to-Book Ratio, Profitability, Cash Ratio, S&P and EJR rating levels*. All the control variables are winsorized at the 1% level. ***, ** and * denote significance at 1%, 5% and 10% levels, respectively. Results for debt issuance, cash ratio and time trend are not reported.

	S&P	***EJR***	***(S&P-EJR)***
Size	1.162***	0.790***	0.397***
	(0.0340)	(0.0326)	(0.0251)
Size×(High-Fee)	-0.0892**	0.103***	-0.214***
	(0.0399)	(0.0393)	(0.0312)
Post Dodd-Frank	-0.611***	-0.268***	-0.269***
	(0.0662)	(0.0639)	(0.0527)
(Post Dodd-Frank)×(High-Fee)	0.0667	0.424***	-0.275***
	(0.0804)	(0.0791)	(0.0647)
(High-Fee)	1.450***	-0.901**	2.345***
	(0.446)	(0.440)	(0.354)
Tangibility	2.271***	0.926***	1.051***
	(0.187)	(0.180)	(0.148)
(Tangibility)×(High-Fee)	-1.317***	-0.531***	-0.572***
	(0.173)	(0.172)	(0.138)
Market/Book	1.711***	2.096***	-0.565***
	(0.0715)	(0.0694)	(0.0530)
(Market/Book)×(High-Fee)	0.330***	0.345***	0.122*
	(0.0886)	(0.0867)	(0.0683)
Profitability	1.435**	3.273***	-2.489***
	(0.679)	(0.655)	(0.534)
(Profitability)×(High-Fee)	4.286***	3.040***	1.814***
	(0.854)	(0.835)	(0.683)
Leverage	-5.993***	-9.396***	4.224***
	(0.292)	(0.285)	(0.218)
(Leverage)×(High-Fee)	-2.719***	-2.307***	-1.018***
	(0.355)	(0.343)	(0.276)
N	8939	8939	8939
R^2	-	-	0.252
Pseudo R^2	0.207	0.214	-

Table 6: S&P and EJR Rating Conservativeness

Logit Regressions to test rating conservativeness after Dodd-Frank. The dependent variable is *Warnings*. Warnings is a dummy that takes a value equal to one if the rating at time t is speculative but the firm does not default within one year. The dependent variable, *Warnings*, is regressed on a dummy for the after Dodd-Frank period, firm-specific controls and a time trend. The *Before Dodd-Frank* period goes from January 2005 to June 2010. The *After Dodd-Frank* period incorporates all rating actions from July 2010 until December 2014. Firm-specific controls include: *Size, Cash Ratio, Tangibility, Market-to-Book Ratio, Profitability, Debt Issuance, Long-Term Leverage and Recession*. All firm controls are lagged one period. Columns (1) and (2) consider S&P Warnings. Columns (3) and (4) consider EJR Warnings. Columns (1) amd (3) assume standard errors clustered by firm ticker. Columns (2) and (4) show estimates with industry fixed effects. ***, ** and * denote significance at 1%, 5% and 10% levels, respectively.

	S&P Warnings		***EJR Warnings***	
	(1)	(2)	(3)	(4)
After Dodd-Frank period	0.419***	0.399***	0.336**	0.332***
	(0.137)	(0.0714)	(0.134)	(0.0712)
Size	-0.946***	-0.986***	-0.729***	-0.632***
	(0.0802)	(0.0250)	(0.0696)	(0.0231)
Cash Ratio	1.170	1.723**	1.234	2.247***
	(1.058)	(0.733)	(1.097)	(0.766)
Tangibles	-1.064***	-0.590***	-1.159***	0.223
	(0.385)	(0.175)	(0.348)	(0.179)
Market/Book	-1.075***	-1.350***	-1.639***	-2.097***
	(0.154)	(0.0575)	(0.178)	(0.0688)
Profitability	-2.827***	-3.443***	-3.692***	-4.595***
	(0.809)	(0.500)	(0.780)	(0.529)
Past Debt Issuance	-2.271***	-2.658***	-4.841***	-4.850***
	(0.730)	(0.729)	(0.749)	(0.751)
Long Term Leverage	6.009***	7.275***	7.664***	9.440***
	(0.616)	(0.211)	(0.575)	(0.231)
Recession	0.0193	-0.0183	0.152*	0.115*
	(0.0703)	(0.0664)	(0.0796)	(0.0668)
Trend	-0.0189***	-0.0211***	-0.00969	-0.0138***
	(0.00665)	(0.00310)	(0.00640)	(0.00310)
N	16799	16598	16799	16719
Pseudo R^2	0.291	0.406	0.305	0.404
Clustered by Firm Ticker S.E.	Yes	No	Yes	No
Industry F.E.	No	Yes	No	Yes

Table 7: S&P and EJR Rating Stability

Logit Regressions to test rating stability after Dodd-Frank. The dependent variable is *Big Rating Change*. *Big Rating Change* is a dummy that takes a value equal to one if the rating level, from either S&P or EJR, changes of at least 3 notches in one year. The dependent variable, *Big Rating Change*, is regressed on a dummy for the after Dodd-Frank period, firm-specific controls and a time trend. The *Before Dodd-Frank* period goes from January 2005 to June 2010. The *After Dodd-Frank* period incorporates all rating actions from July 2010 until December 2014. Firm-specific controls include: *Size, Cash Ratio, Tangibility, Market-to-Book Ratio, Profitability, Debt Issuance, Long-Term Leverage and Recession*. All firm controls are lagged one period. Columns (1) and (2) consider Big Rating Changes for S&P. Columns (3) and (4) consider Big Rating Changes for EJR. Columns (1) amd (3) assume standard errors clustered by firm ticker. Columns (2) and (4) show estimates with industry fixed effects. ***, ** and * denote significance at 1%, 5% and 10% levels, respectively.

	S&P Big Rating Change		***EJR Big Rating Change***	
	(1)	(2)	(3)	(4)
After Dodd-Frank period	-0.682**	-0.765***	-0.267*	-0.364***
	(0.315)	(0.231)	(0.152)	(0.109)
Size	-0.0562	0.0187	-0.0924*	-0.00345
	(0.0993)	(0.0605)	(0.0524)	(0.0300)
Cash Ratio	5.417**	4.962**	0.260	0.890
	(2.497)	(2.248)	(1.576)	(1.049)
Tangibles	-0.485	0.950*	-0.555**	0.349
	(0.426)	(0.523)	(0.236)	(0.256)
Market/Book	-0.566**	-0.676***	-0.486***	-0.681***
	(0.282)	(0.183)	(0.139)	(0.0820)
Profitability	-3.384	-4.691***	0.401	0.131
	(2.376)	(1.577)	(0.915)	(0.706)
Past Debt Issuance	-1.259	-1.016	-2.633**	-2.073*
	(2.576)	(2.176)	(1.200)	(1.092)
Long Term Leverage	3.009***	2.331***	2.370***	2.551***
	(0.855)	(0.502)	(0.426)	(0.253)
Recession	0.313	0.286	0.379***	0.353***
	(0.216)	(0.174)	(0.112)	(0.0896)
Trend	0.0321***	0.0345***	0.0246***	0.0269***
	(0.0122)	(0.0105)	(0.00641)	(0.00481)
N	16799	13700	16799	16696
Pseudo R^2	0.047	0.110	0.036	0.113
Clustered by Firm Ticker S.E.	Yes	No	Yes	No
Industry F.E.	No	Yes	No	Yes

Table 8: Placebo Test: Post-Enron

Analysis of credit rating levels, rating conservativeness and rating stability in the post-Enron period. The Enron scandal was revealed in October 2001. *Post-Enron* is a dummy that takes a value equal to 1 in year 2002. Columns (1) and (2) describe the evolution of *S&P and EJR rating levels* in the post-Enron period. Column (3) shows the *rating difference* in the post-Enron period. Columns (4) and (5) test for rating conservativeness after the Enron scandal by looking at the probability of *Warnings*, where *Warnings* is a dummy that takes a value equal to 1 if the rating at time t is speculative but the firm does not default within one year. Columns (6) and (7) show results for the rating stability test. To this aim, the probability of *Big Rating Changes* is taken into account, where *Big Rating Change* is a dummy that takes a value equal to 1 if the rating level, from either S&P or EJR, changes of at least 3 notches in one year. All the regressions are estimated by using industry fixed effects and by adding a time trend. Firm-specific controls include: *Size, Cash Ratio, Tangibility, Market-to-Book Ratio, Profitability, Debt Issuance, Long-Term Leverage*. All control variables are one period lagged and winsorized at the 1% level. ***, ** and * denote significance at 1%, 5% and 10% levels, respectively.

	Rating Level		***Rating Difference***	***False Warning***		***Big Rating Change***	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	S&P	*EJR*	*(S&P-EJR)*	*S&P*	*EJR*	*S&P*	*EJR*
Post-Enron	0.207***	-0.0920**	0.367***	-0.283***	0.206***	0.370**	0.100
	(0.0424)	(0.0424)	(0.0364)	(0.0687)	(0.0665)	(0.181)	(0.109)
Size	0.995***	0.819***	0.148***	-0.874***	-0.694***	0.176**	0.0767
	(0.0228)	(0.0221)	(0.0169)	(0.0364)	(0.0339)	(0.0811)	(0.0493)
Cash Ratio	-3.065***	-2.500***	-0.539	0.981	3.773***	6.936**	1.968
	(0.735)	(0.723)	(0.620)	(1.136)	(1.140)	(2.964)	(1.767)
Tangibles	1.341***	0.708***	0.372***	-0.781***	-0.606***	-0.217	0.349
	(0.146)	(0.145)	(0.126)	(0.244)	(0.235)	(0.631)	(0.383)
Market/Book	1.054***	1.345***	-0.265***	-0.626***	-0.985***	-1.226***	-0.179
	(0.0401)	(0.0416)	(0.0308)	(0.0747)	(0.0806)	(0.300)	(0.119)
Profitability	7.394***	8.514***	-2.664***	-6.969***	-8.263***	-15.41***	-8.839***
	(0.472)	(0.468)	(0.392)	(0.773)	(0.770)	(2.680)	(1.374)
Long Term Leverage	-6.570***	-6.756***	0.965***	7.350***	7.614***	1.711**	2.178***
	(0.190)	(0.190)	(0.146)	(0.300)	(0.300)	(0.684)	(0.421)
Trend	-0.0362***	0.00220	-0.0391***	0.0283***	-0.00168	0.127***	0.0976***
	(0.00444)	(0.00444)	(0.00380)	(0.00717)	(0.00699)	(0.0204)	(0.0115)
Past Debt Issuance	2.534***	2.994***	-0.954*	-3.091***	-4.968***		
	(0.605)	(0.600)	(0.520)	(0.975)	(0.969)		
N	6918	6918	6918	6754	6823	5742	6302
R^2	-	-	0.191	-	-	-	-
Pseudo R^2	0.180	0.175	-	0.379	0.363	0.189	0.141

Table 9: Bond Market Anticipation around S&P Downgrades

OLS regression of *Anticipation* on a dummy variable for *Falling Angels*, *Size* and various controls. *Anticipation* is defined as:

$$\begin{aligned} Anticipation &= 100 * (Prior\ Period\ Spread\ Change)\ /\ (Total\ Period\ Spread\ Change) \\ &= 100 * \underbrace{(Spread_{t-1} - Spread_{t-i})\ /\ (Spread_t - Spread_{t-i})}_{Anticipation\ Ratio}. \end{aligned}$$

The *Anticipation* variable is constructed by considering a six-month period around any S&P downgrade. The six-month period is constructed by assuming that the rating change observed is the only one that occurs. In the regressions reported above, I assume that EJR ratings do not change over the entire period and S&P ratings do not change in the period prior to the observed change. *Falling Angels* is a dummy that takes a value equal to 1 if the firm is downgraded from the investment class to the speculative class. *Size* is proxied by the number of bonds outstanding. Additional controls include: *S&P rating change, Years to Maturity, Total Period Spread Change and S&P rating level.* Columns (1) and (4) account for year-quarter fixed effets. Columns (2) and (5) account for year-quarter and industry fixed effects. Columns (3) and (6) account for year-quarter and firm fixed effects. Columns (1)-(3) consider the *Before Dodd-Frank* sample. Columns (4)-(5) consider the After Dodd-Frank sample. ***, ** and * denote significance at 1%, 5% and 10% levels, respectively.

	Before Dodd-Frank			***After Dodd-Frank***		
	(1)	(2)	(3)	(4)	(5)	(6)
	Anticipation	*Anticipation*	*Anticipation*	*Anticipation*	*Anticipation*	*Anticipation*
Falling Angel	14.30***	14.22***	17.35***	-13.22***	-14.28***	-14.85***
	(2.952)	(3.056)	(3.072)	(3.804)	(4.123)	(3.895)
Size	0.763	0.475	18.97*	-0.302	0.943	12.63*
	(0.803)	(2.146)	(10.16)	(0.860)	(2.672)	(7.383)
S&P Rating Change	-71.80***	-72.42***	-125.8***	-60.16***	-60.85***	-39.15***
	(1.672)	(1.780)	(16.37)	(1.213)	(1.476)	(5.905)
Years to Maturity	0.114	-0.0269	-0.0853	-0.158	-0.0107	0.0878
	(0.0948)	(0.111)	(0.123)	(0.140)	(0.174)	(0.153)
Total Period Spread Change	-9.528***	-8.434***	-8.576***	-17.48***	-14.24***	-15.26***
	(1.080)	(1.101)	(1.203)	(1.808)	(2.069)	(1.886)
S&P Rating	-0.335	0.194	56.37***	0.0904	0.966	-19.98***
	(0.218)	(0.714)	(17.10)	(0.226)	(0.711)	(6.141)
N	644	644	644	818	727	818
R^2	0.849	0.867	0.881	0.820	0.833	0.856
Year-Quarter	Yes	Yes	Yes	Yes	Yes	Yes
Industry F.E.	No	Yes	No	No	Yes	No
Firm F.E.	No	No	Yes	No	No	Yes

Table 10: Bond Market Anticipation around EJR Downgrades

OLS regression of *Anticipation* on a dummy variable for *Falling Angels*, *Size* and various controls. *Anticipation* is defined as:

$$\begin{aligned} Anticipation &= 100 * (Prior\ Period\ Spread\ Change)\ /\ (Total\ Period\ Spread\ Change) \\ &= 100 * \underbrace{(Spread_{t-1} - Spread_{t-i})\ /\ (Spread_t - Spread_{t-i})}_{Anticipation\ Ratio}. \end{aligned}$$

The *Anticipation* variable is constructed by considering a six-month period around any EJR downgrade. The six-month period is constructed by assuming that the rating change observed is the only one that occurs. In the regressions reported above, I assume that S&P ratings do not change over the entire period and EJR ratings do not change in the period prior to the observed change. *Falling Angels* is a dummy that takes a value equal to 1 if the firm is downgraded from the investment class to the speculative class. *Size* is proxied by the number of bonds outstanding. Additional controls include: *EJR rating change, Years to Maturity, Total Period Spread Change and EJR rating level.* Columns (1) and (4) account for year-quarter fixed effets. Columns (2) and (5) account for year-quarter and industry fixed effects. Columns (3) and (6) account for year-quarter and firm fixed effects. Columns (1)-(3) consider the *Before Dodd-Frank* sample. Columns (4)-(5) consider the After Dodd-Frank sample. ***, ** and * denote significance at 1%, 5% and 10% levels, respectively.

	Before Dodd-Frank			***After Dodd-Frank***		
	(1)	(2)	(3)	(4)	(5)	(6)
	Anticipation	*Anticipation*	*Anticipation*	*Anticipation*	*Anticipation*	*Anticipation*
Falling Angel	-9.399***	-7.344***	-9.022***	8.719***	8.162***	9.284***
	(2.040)	(2.089)	(2.114)	(2.932)	(3.026)	(3.080)
Size	1.354***	0.752	-3.745	0.0477	1.854**	-3.057
	(0.219)	(0.628)	(2.707)	(0.247)	(0.754)	(3.221)
EJR Rating Change	-75.53***	-75.46***	-73.37***	-76.41***	-77.08***	-74.30***
	(0.759)	(0.805)	(1.255)	(0.758)	(0.788)	(1.579)
Years to Maturity	-0.0570	-0.0233	0.00281	-0.0529	-0.0996	-0.122
	(0.0550)	(0.0612)	(0.0659)	(0.0799)	(0.0914)	(0.0938)
Total Period Spread Change	-3.520***	-3.460***	-3.197***	-15.78***	-15.72***	-15.64***
	(0.417)	(0.423)	(0.429)	(0.723)	(0.726)	(0.726)
EJR Rating	0.221*	0.375	-1.349	-0.135	-0.264	-3.609**
	(0.126)	(0.266)	(0.983)	(0.0890)	(0.201)	(1.570)
N	3303	3292	3303	3063	3009	3063
R^2	0.840	0.854	0.862	0.815	0.826	0.837
Year-Quarter	Yes	Yes	Yes	Yes	Yes	Yes
Industry F.E.	No	Yes	No	No	Yes	No
Firm F.E.	No	No	Yes	No	No	Yes

Table 11: Bond Market Response to S&P and EJR Credit Rating Changes

Bond market returns before and after the Dodd-Frank regulation. Bond market returs are defined as:

$$R_{bit} = \frac{P_{bit} - P_{bi(t-2)}}{P_{bi(t-2)}},$$

P_{bit} defines the price of bond b issued by firm i at the time of the rating change *(t)* and $P_{bi(t-2)}$ defines the price of the same bond issued two months prior to the rating change *(t-2)*. Bond returns are calculated as percentage of the bond price two months prior to the rating announcement to weaken the possibility that the price prior to the rating disclosure already incorporates part of the bond market response. I exclude observations if there are rating changes in the two months prior to the rating announcement. I drop observations if the rating change at time t is followed by another rating change at time t+1.

	Before Dodd-Frank		***After Dodd-Frank***	
	Obs.	*Bond Return (%)*	Obs.	*Bond Return (%)*
Upgrade S&P	2416	0.067	3212	0.47***
Downgrade S&P	1767	-0.013	3504	-0.42***
Upgrade EJR	8347	1.18***	15354	1.40***
Downgrade EJR	7821	-1.65***	7696	-0.012***

Table 12: Debt Net Issuance after Dodd-Frank

OLS regression of Debt Net Issuance before and after the Dodd-Frank Act on credit rating dummy variables and firm-specific controls. $S\&P^{Minus}$ and $S\&P^{Plus}$ are dummy variables that take a value equal to 1 if the firm has a plus or a minus S&P rating, respectively, and 0 otherwise. EJR^{Minus} and EJR^{Plus} are dummy variables that take a value equal to 1 if the firm has a plus or a minus EJR rating, respectively, and 0 otherwise. Firm-specific controls include: *Size, Cash Ratio, Tangibility, Market-to-Book Ratio, Profitability, S&P and EJR rating levels.* All control variables are one period lagged and winsorized at the 1% level. Regressions (1)-(4) study the response of firm debt issuance *Before Dodd-Frank.* Regressions (5)-(8) study the response of firm debt issuance *After Dodd-Frank.* In columns (1)-(8), a time trend and industry fixed effects are included. ***, ** and * denote significance at 1%, 5% and 10% levels, respectively.

	Before Dodd-Frank				***After Dodd-Frank***			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Debt Issuance	*Debt Issuance*	*Debt Issuance*	*Debt Issuance*	*Debt Issuance*	*Debt Issuance*	*Debt Issuance*	*Debt Issuance*
$S\&P^{Minus}$	-0.00708	-0.00700	-0.00651		-0.0226***	-0.0182**	-0.0183**	
	(0.0123)	(0.0121)	(0.0121)		(0.00841)	(0.00815)	(0.00814)	
$S\&P^{Plus}$	0.0120	0.0108	0.00954		-0.00543	-0.00451	-0.00483	
	(0.0116)	(0.0114)	(0.0114)		(0.00808)	(0.00771)	(0.00770)	
EJR^{Minus}	-0.0155	-0.0137		-0.0115	0.000458	0.00528		0.00557
	(0.0113)	(0.0111)		(0.0110)	(0.00831)	(0.00794)		(0.00796)
EJR^{Plus}	-0.00511	-0.00462		-0.00245	0.00888	0.00766		0.00773
	(0.0113)	(0.0110)		(0.0109)	(0.00797)	(0.00759)		(0.00760)
S&P	-0.00647*	-0.00766**	-0.00746*	-0.00758**	-0.0101***	-0.0105***	-0.0105***	-0.00927***
	(0.00346)	(0.00383)	(0.00382)	(0.00377)	(0.00248)	(0.00251)	(0.00250)	(0.00244)
EJR	0.0131***	0.00694**	0.00699**	0.00681**	0.0146***	0.00966***	0.00984***	0.00889***
	(0.00331)	(0.00347)	(0.00346)	(0.00347)	(0.00227)	(0.00226)	(0.00224)	(0.00223)
Size		0.00139	0.000630	0.00135		0.00366	0.00359	0.00363
		(0.00553)	(0.00549)	(0.00548)		(0.00354)	(0.00353)	(0.00354)
Profitability		0.303**	0.298**	0.323***		0.316***	0.316***	0.313***
		(0.125)	(0.125)	(0.124)		(0.0896)	(0.0895)	(0.0899)
Cash Ratio		0.0661	0.0748	0.0720		0.0308	0.0338	0.0389
		(0.0796)	(0.0791)	(0.0794)		(0.0519)	(0.0518)	(0.0519)
Market/Book		0.0222**	0.0223**	0.0207**		0.0204***	0.0203***	0.0210***
		(0.00990)	(0.00990)	(0.00984)		(0.00780)	(0.00778)	(0.00781)
Tangibility		-0.00112	0.00161	-0.00154		-0.0140	-0.0152	-0.000472
		(0.0448)	(0.0446)	(0.0448)		(0.0342)	(0.0342)	(0.0338)
N	532	532	532	532	598	598	598	598
R^2	0.211	0.261	0.259	0.258	0.238	0.319	0.318	0.313
Industry F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 13: NRSRO and Dodd-Frank

EJR rating levels before and after the NRSRO designation *(Jan 2005 - Jul 2010)* and EJR rating levels before and after Dodd-Frank *(Dec 2007 - Dec 2014)*. Columns (1) and (2) show results for ordered logit models to capture the EJR rating level evolution after the EJR rating company got the NRSRO designation for firms defined as *High-Fee*. In columns (1) and (2) the sample period is restricted from January 2005 until July 2010 (when the Dodd-Frank Act was passed). *NRSRO* is a dummy that takes a value equal to 1 starting from December 2007, when EJR got the NRSRO designation, until July 2010. *High-Fee* is a dummy that takes a value equal to 1 if the average number of bonds issued by each firm in the sample, in every year-quarter, is above the average number of firms issued by the industry to which the firm belongs. Firm-specific controls, like firm size squared, market to book, profitability, debt issuance and leverage, are included. All the firm controls are lagged one period and interacted by the *High-Fee* dummy. Columns (3) and (4) show results for ordered logit models to capture the EJR rating level evolution after Dodd-Frank for firms defined as *High-Fee*. In columns (3) and (4) the sample period is restricted from December 2007 (when the NRSRO designation was assigned to EJR) until December 2014. *Post Dodd Frank* is a dummy that takes value equal to 1 starting from July 2010 until December 2014. In columns (1) - (4) industry fixed effects and a time trend are included. ***, ** and * denote significance at 1%, 5% and 10% levels, respectively.

	Jan 2005 - Jul 2010		***Dec 2007 - Dec 2014***	
	(1)	(2)	(3)	(4)
	EJR	*EJR*	*EJR*	*EJR*
NRSRO	-0.595***	-0.629***		
	(0.105)	(0.114)		
(NRSRO)×(High-Fee)	0.297**	0.289**		
	(0.132)	(0.133)		
(High-Fee)	-2.012***	-2.012***	-0.215	-0.170
	(0.476)	(0.476)	(0.307)	(0.308)
Post Dodd-Frank			-0.0775	-0.210***
			(0.0713)	(0.0781)
(Post Dodd-Frank)×(High-Fee)			0.295***	0.283***
			(0.0944)	(0.0944)
$Size^2$	0.0424***	0.0422***	0.0469***	0.0463***
	(0.00275)	(0.00276)	(0.00192)	(0.00192)
$Size^2 \times$ *(High-Fee)*	0.0110***	0.0110***	0.00399*	0.00397*
	(0.00344)	(0.00344)	(0.00227)	(0.00227)
N	3557	3557	7262	7262
Pseudo R^2	0.211	0.211	0.227	0.227
Firm Controls	Yes	Yes	Yes	Yes
Time Trend	No	Yes	No	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes

Table 14: Low Quality Firms: Firms with High Conflicts of Interest

S&P rating level, EJR rating level and rating difference between S&P and EJR after Dodd-Frank. *Dodd-Frank* is a dummy that takes a value equal to 1 starting from July 2010 until December 2014. *Low quality* is a dummy that takes value 1 if the firm's operating margin is below the median within each year, quarter and S&P credit rating and zero otherwise. The firm's operating margin is defined as the operating income before depreciation divided by total assets. Firm characteristics include: *Cash ratio, Tangibility, Market to Book, Profitability, Debt Issuance and Leverage*. A time trend and industry fixed effects are included in each specification. ***, ** and * denote significance at 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)
	S&P	*EJR*	*(S&P-EJR)*
Dodd-Frank	-0.293***	-0.0178	-0.288***
	(0.0475)	(0.0470)	(0.0451)
Low-Quality	0.350***	0.0649	0.171***
	(0.0431)	(0.0425)	(0.0406)
(Dodd Frank)×(Low-Quality)	-0.128**	0.0922*	-0.182***
	(0.0548)	(0.0548)	(0.0525)
$Size^2$	0.0620***	0.0462***	0.0127***
	(0.000822)	(0.000775)	(0.000652)
N	16799	16799	16799
R^2	-	-	0.191
Pseudo R^2	0.190	0.187	-
Firm Controls	Yes	Yes	Yes
Time Trend	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes